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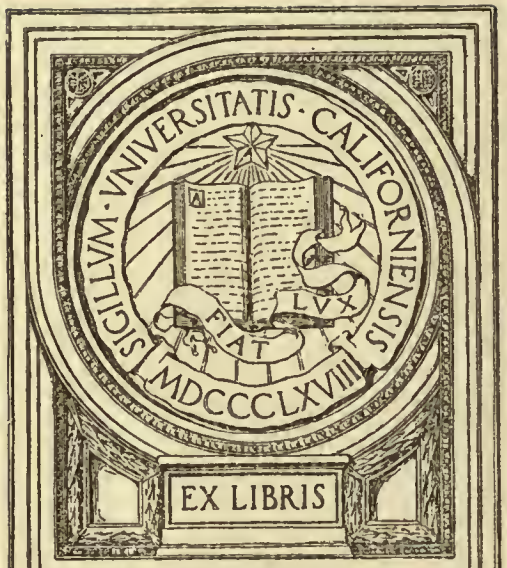

EDUCATION DEPT.

Examinations as educational means
with special reference to the method of self-examination

By

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CONTENTS

		Page
CHAPTER I.	INTRODUCTION	1 - 3
CHAPTER II.	HISTORY, PURPOSES, AND KINDS OF EXAMINATIONS	4 - 13
	A. Early History of Examinations	4
	B. Change in Type and Character	6
	C. Kinds and Purpose of Examinations	7
	D. Means, Methods and Functions of Examinations	12
CHAPTER III.	PROBLEM AND PROCEDURE	14 - 28
	A. Definition of Terms	14
	B. The Approaches to the Problem	15
	C. The Specific Problem	20
	D. Method and Source of Data	23
	I. Some Phases of the Set Examination . . .	23
	II. Some Phases of the Self Examination . .	24
CHAPTER IV.	DATA ON THE SET EXAMINATION WITH INTERPRETATION	29-56
	A. General Statement	29
	B. Feelings at Announcement and Causes	29
	C. Habits of Study	37
	D. Feelings at Taking Examination	41
	E. Evaluation of Set Examinations	48

665373

Page

CHAPTER V. DATA ON SELF EXAMINATION AND INTERPRETATION 57 - 90

A. General Statement 57

B. Feelings at Announcement and Causes 57

C. Habits of Study and Their Evaluation . . . 67

D. Feelings at Preparing Self Examination . . 74

E. The Self Examination Evaluated 81

F. Effect on Study Habits and Memory 88

CHAPTER VI. A COMPARISON AND EVALUATION OF THE DATA . . 91 - 115

A. Feelings Toward Two Types of Examinations . 91

B. Study Habits of Two Methods Compared . . . 104

C. Direct Evalution of the Two Methods . . . 108

CHAPTER VII. RETROSPECT . . . . . 116 - 127

A. Criticism of the Method 116

B. Additional Problems for Study 119

C. The Net Results 123

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CHAPTER I.

INTRODUCTION.

The University of California devotes about two and one-half weeks each semester, or five weeks of the collegiate year to the matter of final examinations. Besides this, in the majority of courses, there are at least two mid-terms each semester, or four mid-terms a year. In the case of a two unit course, this means another two weeks devoted to the subject of examinations. It would thus appear that six or seven weeks of the thirty-six weeks of the standard college year are consumed by the faculty and students in giving and taking examinations. This means that from sixteen to twenty per cent. of the total time in college is given over to examinations. Put in still another way, about six or seven months of a standard college course of thirty-six months, are set aside for examinational purposes. Or again, if the examination program were distributed more evenly throughout the year, instead of being principally massed into two solid blocks of time, one at the end of each semester, we should have every fifth or sixth day taken up with the effort of testing the effectiveness of college teaching.

The importance or magnitude of the problem may be made to stand out further by considering it in connection with the size of the student body at the University of Calfornia. To take one-fifth or one-sixth of <u>one</u> student's time in college to find out what he knows or what he can do, mostly what he knows of certain subject matter, or to give that time over to the student to prove himself, may not of itself seem a very large

or important problem. But to take six or seven months out of the thirty-six months spent in college by each of the ten thousand or more students, makes the problem assume much larger proportions. We may say that the fact that a man spends twenty cents of the one dollar at his disposal one way or for one thing as against spending the eighty cents of that dollar some other way, may not give rise to any demand for a more efficient accounting system on his part. However, when one has $10,000 to invest, the one-fifth of that amount in question would make the problem bulk larger, and would most probably call for a close scrutiny of the different fields of investment, the returns on each, and the like. Ten thousand students spending six weeks in examinations each year would make the aggregate of months thus spent fifteen thousand in all. If it costs the college student on an average of sixty-dollars a month, the money value of the time represented in examinations would be nearly one million dollars, to say nothing of the cost of maintenance, operation, and instruction on the part of the University itself.

This view of the problem of academic examinations would seem to justify the raising of several important questions, such as: What is the nature of the returns, or the net results from examinations, as usually conducted? Are we getting the results we have assumed that we are getting? Are there any by-products or disadvantages that accompany the usual examinational system which would seem to impair or to outweigh the advantages? Do the net results justify the time devoted to securing them? Could the time given over to examinations be used to better purposes? Is the method of examination, as usually adopted, the best method; or could some other

method be substituted therefor with advantage to all concerned? In other words, should not such a vast scheme, vast in time, energy, and money expended on it, as well as in the weight it carries in determining the marks or standings of the students in the several courses, be made to justify itself; or, failing to do that, make room for something better? Would it not seem perhaps to merit much more attention, both in quantity and quality, than it is apparently getting?*

That there is considerable interest in the question, both among the students and the faculty of the University of Calfornia is reflected in the student publication, The Daily Californian. The questions discussed therein are chiefly the necessity and purpose of examinations, their effectiveness, cheating, and the honor spirit designed to abolish cheating, together with a discussion of ways and means of putting such honor spirit into full effect. The general newspaper and magazine literature on the subject also shows a wide and varied interest in the different phases of school examinations. It would, however, lead us too far afield to examine into the kind and quality of this literature. It will be sufficient at this point to state that this study represents an approach to the problem different from any previous approach, as revealed by an investigation of such literature. For the purpose of perspective, it may be found profitable to take a brief survey of the history, kinds, and purposes of examinations in the next chapter.

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* We understand that there is a committee of the President of the University of California working through a special investigator on the problem of University Examinations, but its findings have not yet been made public.

CHAPTER II.

HISTORY, PURPOSES, AND KINDS OF EXAMINATIONS.

A. Early History of Examinations.

An investigation of the history of examinations leads one to the conclusion that they are almost as old as the proverbial hills. They are at least so old as "the memory of man runneth not to the contrary." There are records of examinations having been used in China as early as 2200 B.C. as periodic tests of officers in the public service.* It is recorded that the Great Shun examined his officers every third year. They were then either promoted or dismissed from the service** as the examination seemed to warrant. Examinations for the selection of officers for the public service came into use about 1115 B.C. In these examinations candidates for office had to show proficiency in music, archery, horsemanship, writing, arithmetic, and the rites and ceremonies of public and social life." It is not improbable that examinations as a method in education were already old when we get our first glimpse of them in China. It is said that "this system of examinations is the oldest educational ~~instructional~~ institution in the world."

Though examinations have thus been shown to have had their beginning in hoary antiquity, it is not supposed that our modern examinations take their rise from these ancient examples. There is no agreement, however, among authors from just what source they originated, nor the date of their

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* Examinations, Encyclopaedia Britannica.

** Kemp, E. L., History of Education, 1901. J. B. Lippincott Co. P. 20.

institution. One writer puts it this way:

"When the Emperor Antonius Pius* created the first public professorship at Athens, he unintentionally institutionalized one feature of instruction which has exacted rather a larger tribute of human energy than is its due. For the practice came into being that the teacher who was to be paid out of the imperial treasury should be selected from the whole number of candidates for the post, by means of an examination."**

Examinations had no sooner been established as a means of selecting professors for university teaching, than their use spread to other purposes. Of this spread Dr. Moore says further:

"And the professors, having learned how important examinations were to themselves quickly passed them on to their students. Education had gone on for some six hundred years or more in Greece without them, and it had been able to do its work well, as the results of the Socratic age show. Nevertheless they became an essential part of its procedure, and in the eyes of many students and teachers the determining feature in its work."

By others it is said that "the majority of examinations in western countries are derived from the university examinations of the middle ages" and that the "earliest university examinations of which a description is available are those in civil and canon law held at Bologna at a period subsequent to 1219."*** According to the same authority, competitive examinations for qualifying and selective purposes had been developed considerably at the University of Louvain by the fifteenth century, and that examinations for the B. A. and M. A. degrees were established at Oxford, 1636-1638. A third author, after remarking that "the earliest type of examination which prevailed was oral," goes on to say:

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* The reign of Antonius Pius was 138 - 161 A. D.

** Moore, E. C., What is Education? Ginn and Company. 1915. P. 282.

*** Examinations, Encyclopaedia Britannica.

"The written examination was unknown at the universities probably until 1702, when it was introduced by Bentley at Trinity College, Cambridge. Practical examinations had been employed for a long time in the medieval universities in such a subject as medicine. But the examination in its modern form is a development of the eighteenth century."*

B. Change in Type and Character.

It would be most interesting and instructive to trace the changes in type and character that the examinations have undergone since they were first used in the medieval universities; but a series of quotations from Dr. Moore and others shall have to satisfy this point for present purposes.

"The first universities were nothing but gilds or unions of teachers. They adopted the gild method of applying technical tests to the student who sought admission into their company as masters." These tests "consisted of certain private examinations, a sample lecture on the maintaining of a thesis and his solemn inception into the gild. This academic ceremony tested the ability of the candidate to do what he was henceforth to do, namely, teach certain books according to certain established methods. It was an ordeal made necessary by its object."

"The modern examination has preserved almost every feature of the mediaeval one save its object. That older one was employed to find out whether a man was fit to do a certain thing that he aspired to do. The modern examination exists primarily to determine whether the student knows what it is conceived that he should know. This change in purpose made it possible for the examination to take the form of written answers to written questions. Written examinations having been invented quickly commended themselves as an easily workable device which every teacher of no matter what subject should apply early and often."**

In substantial agreement with the foregoing quotation are the following with respect to the nature of these early examinations and their purpose.

"In the mediaeval examinations we find most of the elements of our present examinations such as certificates of previous study and good

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* Examinations, Cyclopedia of Education, 1911. Edited by Paul Mónroe. The Macmillan Company.

** Moore, E. C., What is Education? pp. 282, 283, 284.

conduct, preparation of set-books, questioning on subjects not specially prepared, division of examinations into various parts, classification in order of merit."

"At their best they (these early university examinations) fulfilled precisely the technical purpose for which they were intended; they fully tested the capacity of the candidate to teach the subjects which he was required to teach in accordance with the methods which he was required to use."*

C. Kinds and Purpose of Examinations.

There is no standard classification of, or a generally accepted nomenclature available for use in a discussion of the subject of examinations. A complete investigation of the different types of examinations in use together with the purposes and methods of such examinations with a view to establishing a standard classification and developing a nomenclature that would be generally acceptable would be a most important study within itself. We may here only sketch and outline the different kinds and classes of examinations with their several purposes, rather loosely though it may be. Neither the classes nor the list is intended to be exhaustive but rather only suggestive as to the wideness of the field or subject.

First, there are the three broad general classes, such as civil service, professional, and school examinations. While as suggested, no sharp lines will be drawn between these several types of examinations, yet it may be said in a general way that the first two are used as means in public administration, while the last are devices or means adopted in schools for educational purposes. (a) Civil service examinations are examinations conducted by or under the authority of some political unit,

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* Examinations, Encyclopaedia Britannica.

whether state or national, for the purpose of classifying and selecting fit and proper persons for the public service; (b) professional examinations are likewise usually conducted by or under the authority of some political or civil unit, whether state, county, or municipality, for the purpose of selecting qualified persons to teach in the public schools, and for admission to the practice of law, medicine, dentistry, pharmacy, and the like; (c) school examinations we shall roughly understand to mean those somewhat regular or periodic tests of knowledge, of either special or general capacity or fitness, conducted either by the school authorities themselves or by some body or authority independent of the schools, for the purposes of selecting, classifying, grading or marking, and promoting students. School examinations fall into three general classes: (1) entrance examinations; (2) examinations in course; and (3) school-leaving examinations.

Second, examinations may be classified on the basis of the nature of the exercise or materials involved; as, (a) practical or laboratory examination; and (b) the theoretical or knowledge examination. The former requires the doing or making something, or as performing an experiment in a laboratory. It partakes of the nature of applied knowledge and skill. The theoretical examination, on the other hand, is a test of knowledge, of principles involved and the like, and partakes of the nature of a mental exercise.

Third, school examinations are sometimes classed as "honor" or "pass" examinations, as is the case in English Colleges and Universities, being distinguished in part by their relative degree of difficulty or

extent of ground covered. Students seeking honors are required to take the more difficult "honors" examinations, while all other students are permitted to take the easier "pass" examination.

A fourth classification of examinations is sometimes made as (a) internal, and (b) external, according as the examination lists originate with the teaching staff or with some authority dissociated from the teaching staff. Internal examinations are those in which the teaching and examining functions are combined, and external examinations, those in which the two functions are separated. It is said that the "teaching and examining functions of a university were dissociated for the first time at the incorporation of the University of London, 1836. The teachers had no share in the appointment of the examiners or in determining the curricula for examinations."*

The examinations in England are perhaps the most noted external examinations, while the regents' examinations in the state of New York are the best example of the same kind in America.

Another writer would classify school examinations as of "two sorts, the intraterm, commonly called 'tests', and the interterm, called 'finals'."** This suggests also the classes, "mid-terms" and "finals"; or "preliminaries" and "finals."

Sixth, there are what are sometimes called (a) comprehensive examinations, and (b) subject examinations. By a comprehensive examination is understood an examination in a field as, say, mathematics, while a

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* Examinations, Encyclopaedia Britannica.

** Earle, S. C., Examinations in English. English Journal, Vol. III. December, 1914. pp. 612-619.

subject examination would be an examination in a single subject of mathematics, as arithmetic or geometry. Or again, a comprehensive examination would be one in the entire field of history or literature, while a subject examination would be one confined to a special phase in each of these fields, as American history, or the law and technique of the drama.

Seventh, much has been said in recent years about objective measurements. The term objective would suggest its opposite, subjective. Thus, examinations are subjective or objective according as the rating, evaluating, or marking of the same is more or less a matter of subjective or personal opinion, or whether the evaluating may be done by some constant, fixed, external standard. A teacher giving her pupils a writing test and then rating such writing according to her own individual notion of what constitutes good and poor penmanship, would be an example of a subjective examination; whereas, the rating of such samples of writing by means of a graded or standardized writing scale would illustrate the objective examination. The objective and subjective examinations suggest, in a measure, the fourth classification above, the external and internal examinations. A teacher examining her pupils in terms of her own teaching and standards may be said to measure her pupils subjectively while an examination given by some one other than the teacher, the teacher having no share in determining the examination questions, becomes more of an objective examination.

Closely related to the objective and subjective examinations are the terms <u>standardized</u> and <u>unstandardized</u> educational measures, scales,

or tests. The standard tests, scales, or measures are exercises, problems, or samples of accomplishments of known difficulty arranged in a series, the same being widely accepted and used as measures of value, for the purpose of comparing the achievements or native abilities of pupils. The usual school examinations, the lists being prepared for the particular occasion each time, would be examples of unstandardized examinations.

Ninth, a further classification would be, (a) mental or intelligence tests, and (b) educational measurements. In the case of the former the purpose is to measure native mental ability or intelligence, power or capacity, while in the latter the aim is to measure school ability or achievement which is the result of training.

Tenth, various terms are applied to examinations, such as tests, written reviews, quizzes, according as the object or purpose in the view of the instructor, or the length of time to be consumed in taking them, may vary. The briefer, more frequent, regular or irregular, informal ones are often called tests or quizzes, or even written reviews, while the longer, less frequent, more formal and difficult ones are usually styled examinations.

An eleventh classification was suggested in the preceding paragraph, that of informal and formal examinations, with the distinction between the two types being similar to that given above.

Twelfth, examinations may be either public or private, according as they are conducted by some public or private authority; or according as they are open to the public or to only a selected group.

Thesis examinations are sometimes set aside as a special type or class, in which the chief object is the quizzing on and the defense of a thesis prepared by a candidate for a degree.

Lastly, examinations may be either oral or written.

The difficulty of classifying was recognized at the outset, and was so stated. This difficulty arises from the fact that the terms used to designate the several classes are not mutually exclusive. Instead, a single class may cut across all the other classes, as is practically the case with the oral and written forms of examinations. As was suggested in the beginning, to derive a scientific classification of examinations, and develop a standardized nomenclature for the same might of itself be a worthy study.

D. Means, Methods and Functions of Examinations.

The several purposes of examinations had to be discussed in part at least, in connection with the consideration of the different classes of such examinations. We have already seen that examinations are carried out by means of (1) written papers; (2) oral quizzes; (3) practical or laboratory tests; (4) theses; or (5) by the combination of two or more of these. We have also seen that,

"examinations may test (i) knowledge, or, more exactly, the power of restating facts and arguments of a kind that may be learnt by rote; (ii) the power of doing something, e.g., of making a précis of a written document, of writing a letter or a report on a particular subject with a particular object in view, of translating from or into a foreign language, of solving a mathematical problem, of criticizing a passage from a literary work, of writing an essay on an historical or literary subject with the aid of books in a library, of diagnosing the malady of a patient, of analyzing a chemical mixture or compound; and (the highest form under the rubric) of making an original contribution to learning or science as the result of personal investigation or experiment."*

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* Examinations, Encyclopaedia Britannica.

It remains to summarize the functions of examinations. Such functions may be said to be : (1) to test the extent of past work; (2) to test the power for subsequent work -- the degree of present ability; and we might also add (3) that, through the means adopted or used, examinations should encourage proper study habits. The last is, however, practically implied in (2).

The importance of examinations has been considered, and a brief survey of the history, kinds, purposes, means, and functions of examinations made. Under the kinds of examinations, there were given the three broad general classes of civil service, professional, and school examinations. School examinations were further classified as entrance, course, and school-leaving examinations. In the treatment of the topic, "Examinations as educational means with special reference to the Self Examination", we shall restrict our study to school examinations given in course. It will be the function of the next chapter to define the terms more fully, to set out the problem for special study, to note the various approaches to the problem, and to present the procedure followed in its solution, including the sources of the data collected and to be discussed in succeeding chapters.

CHAPTER III.

PROBLEM AND PROCEDURE.

A. Definition of Terms.

In the previous chapters a common understanding of the terms used has been assumed. It will be necessary, however, from this point forward to assure ourselves of such common understanding of the terms "examinations", "educational means", "self examination", and the like.

The term "examination" comes from the Latin examen, the tongue of a balance, (the indicator), and tion meaning the act or state of. Examen is a contracted form of exagmen, from exigere, to weigh, to treat to drive out, to demand, to determine, to measure. We have then examination in a broad sense meaning (a) the act of weighing, determining, measuring, or indicating; or (b) the state of being measured, determined, indicated, or weighed. To quote Webster, it means "a careful search, investigation or inquiry; scrutiny by study or experiment." Again, in a narrower sense, it means "a process prescribed or assigned for testing qualification." We shall thus understand a school examination given in course to mean "a process prescribed or assigned for testing qualification", the qualification to be tested being (1) the extent of past work; and (2) the power for subsequent work or the degree of present ability.

The term "educational means" is of course complex and we shall have to separate it into its component parts in order to get at its meaning. "Educational" we shall consider as of or pertaining to education, and by "means" we shall understand a method, way, or device, "through which or by the help of which an end is attained; something tending to an object

desired; intermediate agency or measure." Thus then, "educational means" will be any method, way, device, agency, or measure through which or by the help of which education is attained, or that tends to educate.

The self examination is that type or method of testing in which the responsibility of giving the examination is placed on the student himself, he becoming at once and the same time the examinee and examiner. As to how this may be done or is carried out, will be discussed later, and an amplification of the term given.

B. The Approaches to the Problem.

To consider the several possible ways of attacking this problem will tend to make it stand out in greater relief. What, then, are some of such approaches? First, one might take the historical viewpoint and undertake to present the history of examinations as educational means, showing the origin and evolution of the several types of examinations, tracing any changes that each may have undergone in either purpose or method or both, and thereby evaluating examinations in each of the several periods of educational history. In this way one would be able to discover how much of the past with respect to examinations, whether good, bad, or indifferent, is still with us, together with the reasons therefor.

Second, an investigation of the present day usage and practice as to examinations would undoubtedly yield rich returns. The investigation might well cover such phases of the question as: (1) the extent to which examinations are used as educational means in schools, colleges, or universities, i.e., the number and types of institutions so using them; (2) to what rank or grade of students do they apply, whether graduates

or undergraduates, or both; lower division or upper division or both; are any students exempt? if so, what are conditions of exemption? (3) the kind and number of courses in which they are given; are they used in some courses and not in others? in how many used? not used? names of courses; is it because of the nature of the course or the attitude of the one in charge of the course that they are used or not used? (4) the types of examinations given, whether oral or written, comprehensive or subject; (5) marks and markings: the value placed on such examinations in determining the marks of students; the several systems of marking compared and evaluated; who marks the papers? (6) frequency of examinations and length of examination periods; relative proportion of total time of term or semester given to the holding of examinations; (7) type and quality of questions asked, and the like. These are some of the lines that an investigation into present practice or the place examinations hold as educational means today might well take.

Nearly all of the topics suggested would be capable of further subdivision and expansion. To give a single illustration, under topic (7) above, "type and quality of questions asked", one might well consider such phases as (a) Whether the questions asked are thought provoking; (b) Whether they call for application of previously learned facts and principles; (c) Do they show any real planning in their preparation, or is there evidence of their being just thrown together? (d) Do most of them make mere drafts on memory? (e) Is the character of questions such as to induce proper study habits or modes of learning,

or vice versa? In fact, topic (7) would of itself be almost big enough and important enough to constitute a study by itself. One could very well limit such an inquiry into present usage to a single type of school, as say either (1) public secondary schools; (2) private secondary schools; (3) the usage in state universities; or (4) in private colleges and universities; or, (5) one might compare the practice in two or more of these.

These considerations of the problem of examinations as educational means make it loom large and show the possibilities for research in the subject. As already intimated, both the historical and present-practice approaches to the question would have to be still further limited or restricted in scope than the tentative outlines proposed might seem to suggest.

A third study that might be made would be to consider the question, "Why do examinations persist?" The solution of this question would in a measure combine the historical and the usage methods of attacking the problem, but would go even farther and make us "give a reason for the faith that is in us." It would make us go over the whole ground again and re-investigate the educational principles and theory or philosophy underlying examinations. Examinations as educational means would have to justify themselves or make room for something better. This might be called the philosophical approach.

A fourth solution might be undertaken and an investigation begun to determine the educational value of one type of examination as compared with other kinds, by some scientific or laboratory method. But many difficulties to this method persent themselves: (1) Examination methods are

so intimately related to teaching methods, that one might not be sure whether he is really evaluating different examinational methods or different methods of teaching; (2) in the experiment the same subject matter would be involved. This would necessitate, (a) different groups for each of the different examinational methods, which would of itself raise such further difficulties as the selection of the groups for the experiment; and the control of the quality of instruction for each group; or (b) the trying out of the different methods on the same group of students. But, since different examinational methods are designed to measure different things, no real basis of comparison would result from this direction. Again, (3) if different groups of students were used, aside from the difficulties already pointed out of selecting the students and of controlling the qualities of instruction for each group, since different types of examinations do not measure equally the same things, it would be difficult to interpret the results obtained from the different groups. These are a few of the difficulties that would be in the way of the experiment, and only go to show that the approach would be far from easy. And yet, these difficulties may not be insurmountable and should not discourage an attempt at solution. Such experiments as have been made in this direction have been in the nature of testing the retentive power of memory resulting from different modes of learning, or of like character.

Still another attack on the problem would be to learn of the emotional effects of the several types of examinations on those who take them in college, and also the value they place on such examinations, as given or stated by the students themselves. While it is recognized that the

evidence thus collected would not be conclusive, as much of it would be mere opinion, or the judgments of more or less immature students. Yet in the mass of testimony a few warped judgments would have less effect or weight, error would tend to be eliminated, and some significant tendencies or results might appear.

It was this last approach to the problem that was chosen, partly because of the nature of the problem, and partly because there was no literature discoverable on the self examination, it not having come into any general or widespread use. Thus both the historical and the usage approaches were practically closed. This same newness of the self examination also ruled out the third method of attack, while the lack of facilities precluded us from considering the fourth method at this time. The fifth method of solving the problem was also chosen because it was felt to be a rather new approach to the whole question of examinations, and was regarded worthy of consideration. Since making the study, an investigation or two partaking a little of the same nature as this study have been brought to light. These latter investigations were made by Lobsien and Plecher of Germany, and consisted of first, an investigation into the difference in the amount of error by children working under normal conditions and under examination conditions; and second, by Plecher alone, who sought to learn to what extent conditions of anxiety were present in an examination by having the children, some days after the official examination, prepare a so-called "free essay in regard to school examinations."*

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* Examinations, Cyclopedia of Education.

Having set out the problem only in general terms, and having noted the possible ways of attacking it, it becomes necessary to define the problem somewhat more specifically, to note or to describe the method of solution adopted a little more fully and to indicate the source of the data.

C. The Specific Problem.

The specific problem is the consideration of the self examination as educational means, and in the process, to compare it with the usual method of school examinations which in this instance we shall call the "set" examination. In answer to the question, Why "set" examination?, usage may have some suggestions to offer. We have long spoken of the examination being "set" in the sense of the place and time for it being fixed, or the time being actually at hand and the examination being in process. Again, we speak of "setting" the examination paper, meaning thereby to prepare and arrange the questions for the same. We also say that life after school is continually "setting" tests, i.e., is giving us problems and is exacting solutions. We may think further of the usual examination as being "set" in that it is determined for or required of the student by some one else, -- it is set for him. With its form and character he has nothing to do, neither with the quantity nor quality of the questions has he anything to do. The situation is thus "set" and he answers or attempts to answer a set of questions. It is also "set" inasmuch as its limits are fixed or its scope determined by this very "set" of questions.

It is in the sense then that the usual examination is organized and held by some one other than the student, its limits being marked out by the questions asked, and the time and place for holding it being designated,

that we shall, for the purposes of this study, know the usual examination as the "set" examination.

In the case of the self examination, the situation is almost exactly reversed. The examination is not organized nor held by some one else, but by the student himself. There are no prepared questions, and the limits or scope of the examination is the course as a whole or so far as already considered. The time and place for taking the examination are of the student's own choosing. Perhaps the directions or instructions given at the time of announcing a self examination may help to explain more fully its nature and character.

The instructions run about as follows:

(1) This is to be a paper written outside of class, with the aid of your notes, texts, and outside reading.

(2) The paper should show or contain:

(a) Your interpretation of what to you are the significant points or topics covered in the course -- your views, opinions, beliefs, or personal reactions. The thoughts you have been thinking by virtue of the course. Be free to use any pertinent illustrations, whether from personal experience or from outside reading.

(b) Taking Stock. If the course should end now, what would have been its value to you? What are the high points, the things that stick? What are the meaningful things to you? What have you gotten out of the course?

(c) Changes Effected in your views or thinking by reason of the course; or any corroboration of your previous views or beliefs, your agreements or disagreements with the course or parts of the course.

(d) Application. What are the applicable elements of the course? How and where may they be applied? With what consequences? What application will you make of these things? How?

(3) Form, style, length, etc., of the manuscript.

(a) It will be permissible to give the paper a heading of your own choosing and to write it in a personal way in the first person.

(b) The paper should show organization and unity. It should begin somewhere, should move in a definite direction, to some definite goal. You should feel this. Make the paper a serious matter -- a worthy effort. You should feel that it is your best and that it has been worth while when you are through.

(c) How long shall the paper be? That will largely depend on who you are, whether you have much or little to give. It is not quantity but quality that counts most.

It would thus appear that some of the distinguishing characteristics of the self examination are:

(1) A manuscript prepared outside of class.

(2) The responsibility of determining the significant or examinable points is thrown on the student.

(3) The inclusion of only such points in the manuscript as may seem to the student to be most important.

(4) The free use of any or all material bearing on the topic, from whatever source collected.

(5) It puts the emphasis on interpretation instead of recall.

(6) It provides for the special interest of the student in the subject -- for individual differences.

It is perhaps desirable at this point to distinguish the self examination just explained or described above from that other self examination which not a few students give themselves in preparation for the set examination. This latter self examination is more or less of a self quiz for the purpose of reviewing certain subject matter. Its purpose further is perhaps more to test the power to recall, in order to determine for the candidate himself his own readiness or unreadiness to take a set examination. This sort of a self examination is in the main approved as a worthy habit, and is analyzed in part here only to show some of its points of difference from the self examination that is the particular study

of this paper. It may be said here that the special object of the latter self examination is to train in constructive thinking, to develop the power of discrimination, of judgment, of evaluation. It is to induce the best efforts of the students by enlisting their interests. It enlists their interests by giving them stock or proprietorship as it were, in the course. They are encouraged to invest themselves in the process.

The purpose then of this study is to make at least a tentative or partial evaluation of the self examination as educational means, to inquire into and to ascertain so far as possible to what extent it is or is not valuable as such means. The method adopted to arrive at a solution of the problem, together with the source of data will be taken up next.

D. Method and Source of Data.

The plan adopted was to study the effects of the two types of examinations, the set and self examination, on those who take them in college; and also to inquire into the value they place on each of the two types. The effects studied were limited to two: (1) the effects on the emotions of the students; and (2) the effects on their study habits. The nature of the problem of course limited the investigation to those who have taken and consequently are familiar with both kinds of examinations. The investigation was made by means of a questionnaire, a copy of which is here reproduced.

I. Some Phases of the Set Examinations.

1. Analyze or describe your feelings on hearing the announcement that there would be an examination at a certain time, whether of resentment, fright, fear, pleasure, joy, indifference, etc.

2. Analyze or describe your feelings at hearing such an announcement in any other course.

3. Try to assign a cause why you feel that way toward the matter. Give such cause.

4. Describe your method of study in preparing for such a test.

5. Does your method in preparing for a test differ from your usual method of study? If so, describe the points of difference.

6. Evaluate your method of study in preparing for a test as compared with your usual method of study.

7. Describe your feelings at the time of taking the test, whether fright, fear, joy, pleasure, indifference, etc.

8. Are you usually nervous on such an occasion? Why or why not?

9. What is the value of such written tests, as you see it? Give reasons for your answer.

10. What, if anything, is wrong with such written tests?

11. Suggest ways and means of improving examinational methods.

II. Some Phases of the Self Examination.

1. Analyze or describe your feelings on hearing the announcement that you will be expected to present a manuscript prepared as a self examination at a certain time, whether of resentment, fright, fear, pleasure, joy, indifference, etc.

2. Try to assign a cause for feeling as you did toward the matter. Give the cause.

3. Describe your method of study in preparing a self examination manuscript.

4. Does your method of study in preparing a self examination manuscript differ from your usual study method? If so, describe the points of difference.

5. If your method of study in preparing a self examination manuscript is different from your usual method, evaluate your method in preparing the self examination manuscript as compared with your usual method.

6. Describe your feelings at the time of preparing the self examination manuscript whether of resentment, fright, fear, joy, pleasure, indifference, etc.

7. Were you nervous when you prepared the self examination manuscript? Why or why not?

8. What is the value of the self examination method as you see it? Give both the strong and weak points of the method.

9. Compare the method of self examination with the usual set examination.

10. What would be the probable effect on your study habits if the method of the self examination should come into general use? Why?

11. What would be the probable effect on your memory? Why?

The structure or make-up of the questionnaire should be explained. The procedure in going about to hold an examination is about as follows: (1) the announcement of an examination to be held at a certain time and place; (2) the time intervening between the announcement and the examination, used by the students to prepare for the event; and (3) the examination itself. It will be noted that the questionnaire roughly falls into four parts. First, there are the feelings at the time of the announcement, the examination in prospect; second, there is the preparation for the examination; third, there are the feelings at the time of the examination in process; and fourth, we have an evaluation of the method of the examination.

In addition to any specific or individual weaknesses of the particular questionnaire, the usual objections to the questionnaire method of investigation may all apply. This matter will be discussed at another place. Let it be said that the purpose was to learn, so far as possible, the actual situation, or exactly what was in the minds of the students, and not to develop or to secure testimony of a certain kind.

The instructions or directions given at the time of issuing the questionnaire will further illustrate the purpose and method. All of the

questionnaires, except eleven, were issued by the writer in person. The eleven were issued by a personal letter from the writer.

The directions were as follows:

(1) Number your answers to correspond to the respective questions.

(2) Answer each question.

(3) Keep your answers to the two sets of questions separate and distinct.

(4) Be as brief as possible with your answers.

(5) In describing your feelings or attitudes toward examinations, do not limit yourself to the descriptive terms given in the questions. Notice the "etc".

(6) Give your own thoughts or feelings just as they are or have been in the matter.

(7) Interpret "tests" as meaning either mid-term or final examinations.

(8) It will not be necessary to sign your paper, if for any reason you should prefer not to do so.

The plan originally was for the investigator to give a set examination, later to be followed by a self examination, to all the students of whom inquiry was being made. But after investigating a few cases, and after learning that the replies to question 2. of Part I. were essentially the same as to question 1., question 2. was thereafter struck out, and question 1. so modified as to read, "in any course". It should be further stated that questions 10. and 11. of Part II., were added to the original questionnaire, after the first few investigations.

As to the number of questionnaires issued, and the group from whom inquiry was made and replies received, it may be said, first, that the questionnaires were given out only to students in the University of California, in courses conducted by the writer, both in the regular semesters

of 1919 - 1920, and in the summer session of 1920. Second, students in the following courses and semesters are represented in the investigation, with the number of replies received from each.

Courses	Semesters	Number Enrolled	Replies Received
History of American Education	Aug. - Dec., 1919	20	11
History of American Education	Jan. - May, 1920	31	31
Rural School Supervision	Jan. - May, 1920	12	6
Principles of Teaching	Summer Session, 1920	14	10
Rural Sociology	Summer Session, 1920	21	10
Principles of Secondary Education	Aug. - Dec., 1920	47	38
Rural School Organization and Administration	Aug. - Dec., 1920	15	13
Total		160	119
Counted twice		17	
Different Students		143	

Third, as to status in the University of those from whom replies were received, and their distribution as to sex we have:

Juniors	30		
Seniors	53		
Graduate students	33	Men	33
Special students	3	Women	86
Total	119	Total . .	119

Fourth, in the matter of class standings, or marks received, with the number receiving each mark were:

I's	26
II's	79
III's	14
Total	119

Practically all signed their replies and the few who did not attach

their signatures we were able to identify by other means.

The chief interest in what follows centers in the group study, or mass testimony, and does not attempt to make a case study beyond what has already been done.

In the following chapters there will be considered the data, first, as to the set examination and its interpretation; second, that of the self examination; after which the summaries of the data of the two questionnaires will be brought together in a separate chapter for comparison, concluding with a final chapter on the net results of the study, with such conclusions, criticisms, and suggestions as the data may seem to warrant.

CHAPTER IV.

DATA ON THE SET EXAMINATION WITH INTERPRETATION.

A. General Statement.

Part I. of the questionnaire, "Some Phases of the Set Examination", falls naturally under four heads, as follows:

(1) The feelings at hearing the announcement of an examination, with causes.

(2) The method of study for, and an evaluation of the same.

(3) The feelings at the time of taking the examination.

(4) An evaluation of the set examination with suggestions for improvement.

The plan will be to give the summaries and interpretations by such groups, rather than by individual questions, or merely a general interpretation of the whole. There were one hundred sixteen replies to Part I. of the questionnaire.

B. Feelings at Announcement and Causes.

The questions of the first group were:

1. "Analyze or describe your feelings on hearing the announcement in any course that there would be an examination at a certain time, whether of resentment, fright, fear, pleasure, joy, indifference, etc."

3. "Try to assign a cause why you feel that way toward the matter. Give such cause."

There were one hundred fifteen replies to these questions. Fifty-eight, or about one-half, expressed a variety of or mixed feelings, varying somewhat with the course, the professor, or their own particular mood or physical state at the time.

The terms used by the students in describing or designating their feelings or attitudes, were classified under the three headings, favorable, unfavorable, and indefinite or neutral.

As to the basis of classification, let it be said, in general, that the accepted meaning of the descriptive term used was taken as such basis; e.g., the following group of words, pleasure, fear, indifference, was classified as favorable, unfavorable, and indefinite or neutral, respectively. But the classification of such terms as wonder, relieved, surprised, is not so easy. In this case, the causes given were permitted to determine the classification.

There were in all one hundred nine different terms used, and divided as follows:

Favorable	20
Unfavorable	76
Indefinite or Neutral	13
Total	109

Of the favorable terms, only one was used more than twice, "pleasure", which occurred ten times. Each of the following occurred twice, curious or curiosity, joy, satisfied, and welcome. The remaining fifteen terms were used but once each. They were:

acceptable
confidence
competition
examinations of considerable help
expectant desire
glad
helpful
interested
liked
looked forward to
perfectly safe
ready
realization of the need of a great deal of review
speculation
wonder

The causes for these favorable feelings or attitudes arrange themselves at most under six heads, as follows:

(1) Interest and pleasure in the subject, etc.	9
(2) Opportunity to review	9
(3) Curiosity and speculation	5
(4) Joy of competition	3
(5) Opportunity to learn class standing	2
(6) Opportunity for expression	2

Some of the typical interesting causes for these feelings were given as:

"Some teachers always managed to give the impression that the examinations they gave were meant to be helpful to us in mastering the subject. These were the ones whose examinations I liked to take."

"On only one occasion. The teacher was an outstanding exception to the usual college professor and the subject was presented in a masterly manner, which accounts for my extraordinary feeling."

"It gives me an opportunity to review and correlate the work."

"To know the kind, that is, how the subject will be approached."

"Enjoy competing with my classmates."

"I assumed that he couldn't ask a reasonable examination that I couldn't pass, and I tried to prove it."

"To know where I stand in class according to the professor."

"I can write a fairly good paper."

The unfavorable terms occurring ten or more times were:

Fear, fearful.	48	Worry, worried	13
Resentful, resentment .	34	Nervous, nervousness . .	11
Dread, dreadful	17	Anxiety, anxious	10
Fright, frightened . . .	16		

Those used from two to five times were:

Uneasy, uneasiness	5	Despair	2
Disgust	3	Disagreeable	2
Necessary evil	3	Displeasure	2
Suspense	3	Resignation	2
Afraid	2	Terrified, terror	2

A large list of terms were used but once each. The list is:

Angry
Anguish
Annoyance
Antagonism
Boredom
Burden
Depression
Desperation
Disapproval
Discomfort
Discouraged
Dislike
Dismay
Disturbed
Drudgery
Excitement
Fatigue
Going down a swift elevator, heart seems to jump into my throat.
Heavy heart
Impetus to review or cram.
In spirit of predestination
Irrationality
Irritation
Loathe examinations
Mental torture
Need of cramming
Never joy
Not pleasure
Nuisance
Oh horrors
Oh dear, another old examination
Opposition
On the defensive
Overwhelmed
Panicky
Paralyzed
Petrified with fear
Relieved
Scared to death
Sense of injustice
Shock
Sickness
Sinking
Slight perturbation
Something to be endured
Submission
Succumbing to the inevitable
Taking on an extra burden
Tension
Timidity
Trembling
Trusting to an absolutely unknown, unchangeable, irrevocable fate.
Uncertainty
Unpleasant anticipation
Unstrung
Up in the air
Upset
Utterly at sea
Wish that it was over.

A summary of the causes for the unfavorable feelings gives us the following list of those used five or more times.

(1) Fear of failing 70
(2) Amount of work or character of study required 40
(3) Uncertainty
  (a) as to questions 38
  (b) as to marks 19
  (c) general 10
  (d) form required 1

(4) Lack of time 16
(5) Unfairness of examination. 14
(6) Examination, instrument of torture 6
(7) Poor quality of teaching 5
(8) Due to nervousness 5

Those causes given fewer than five times were:

(1) General attitude of students and teachers. . 4
(2) Dislike or disapproval of examinations . . . 4
(3) Examinations inevitable 3
(4) No interest in course 2
(5) State of health 2
(6) Shock 1
(7) Threats from teacher 1
(8) Various reasons 1
(9) Worst had happened 1

It would perhaps be unprofitable and would require too much space to give all the different statements of causes for these unfavorable feelings toward the set examination, varying chiefly only as to form of expression, rather than content or meaning, as the classification above would indicate. However, a few representative or interesting forms will not be without value here.

"Fear of failing. Fear of not getting down in my notes what will be called for by the examiner. Fear of not getting a good grade."

"Lest I may forget this or that."

"Had two examinations and two papers assigned for that day."

"The lecture system tends to turn one into a sponge with a lot of absorbed but unassimilated matter."

"I realize that I must study and cram into my brain a lot of facts, more or less unconnected of more or less importance and without the time to pick out and figure out what is most interesting and which has some connections with the things about me."

"The awful uncertainty of what to expect."

"Most examinations are a matter of luck and one can only prepare for a relatively small number of the questions that could be asked."

"The principles of examining vary with each individual professor. There is no standard for preparation for an examination, and one may be unaware of the point of view of another."

"That a set of written questions might possibly include a minor point for which major credit might be given."*

"Due to the system of grading by the average instructor."

"The final mark depends too much on the element of chance."

"We need good grades for good recommendations so we dread examinations."

"Lest I should not have time to prepare."

"That I may not be able to finish everything in time."

"Most examinations cover the ground very poorly, are a doubtful means of determining what any certain person knows about a course and often are simply a memory test of unimportant details given under the assumption that if the student can answer these he can give the correct answers to all the rest of the information given in the course."

"The examination is an instrument of torture."

"General attitude of most students and teachers that an examination is something to be feared and dreaded."

"Remnant of old group fear. From earliest school days children 'oh' and 'ah' in fearful whispers at the thought of an examination. In the mind of a sensitive child, this group expression becomes the cause of real terror."

"Against the mode and kind of examinations given. There are examinations and examinations! which although they are under the same system, are very different."

"Due to my natural dislike of examination or anything pertaining to a final."

"To study for an examination creates a loathing for the course."

"Sometimes due to my own physical condition, sometimes it was the effect the instructor had on me."

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* This sentiment was expressed by a Phi Beta Kappa student.

"I do not always know how the teacher likes the matter expressed."

"Some teachers seem to want to show us up, and spring 'catch questions' on us."

"Necessary to the process of education and the only thing to do is to meet it half way and knock it cold."

"Relieved that the worst had finally happened, and I knew just when it was to be given."*

The indefinite or neutral terms were thirteen in all, four of which were used two or more times.

Indifference, indifferent	41
Surprise, surprised	3
Relieved	2
As a matter of course	2

The other nine, used but once each, were:

Don't care	Of more work to do	Take it and do what you can with it
Natural course of things	Part of the work	Taking on an extra responsibility
Never joyous	Something that's got to be done	Usual assignment

The causes for these indefinite or neutral feelings classify as follows:

(1) Examinations must come, or used to	24
(2) Due to character or presentation of course	6
(3) Due to method of preparation for	4
(4) Indifference to grades	5
(5) Surprised at word <u>examination</u>	1
(6) Time allowed	3

Some of the more striking or characteristic causes given were:

"It puts me to no more trouble than a daily lesson."

"Due to a habit formed in grammar school and never changed, of studying daily throughout the term but of doing no extra studying for examinations."

---

* The expression of another Phi Beta Kappa student.

"Having done my work each day and having taken from it the things that were vital to me, my work is done."

"Constant exposure to danger causes indifference."

"From the callousness produced by my previous experiences -- the indifference of the ox to the yoke."

"An examination of some sort must come sooner or later, and the sooner the better."

"Nothing better could be expected. What's the use of worrying?"

"I have never been able to regard examinations as matters of as fatal seriousness as some folks do."

"I feel that I'm powerless to change the questions and since I can only do the best possible when I take the exam, it is needless to fret beforehand."

"When I have done my work conscientiously, I am generally fairly sure I can answer the questions in the examination. I care very little whether I get a one or a two or even a three."

"Examinations do not mean much to me because, although I value a good grade, I do not make the obtaining of a grade my goal."

"The grades given in many cases had no relationship to the efforts put forth in writing the paper and the material contained in it."

"To me just the word in itself surprises me."

"I have the time to prepare."

While about fifty per cent. of the replies expressed varied or mixed feelings toward examinations at times, yet their several feelings or attitudes were predominantly unfavorable to the set examination, as the foregoing data plainly show. To the data classified as unfavorable there might have been added much of the data classed as indefinite or neutral. In fact if any situation or educational means arouses only an indefinite response, or if the attitude toward it is neutral or indifferent, especially if such means or situation is expected or intended

to create or to measure definite responses, then such indefinite or neutral attitudes or feelings might themselves be regarded as unfavorable, and the set examination as perhaps failing to that additional degree. It would seem fair to conclude from the data presented that the set examination as educational means is really very questionable, and should be seriously investigated.

C. Habits of Study and their Value.

The second natural group of questions, 4, 5, and 6, takes up the students' habits of study in preparing for a set examination, and the values the students themselves place on such methods of study. The respective questions are:

4. Describe your method of study in preparing for such a test.

5. Does your method in preparing for a test differ from your usual method of study? If so, describe the points of difference.

6. Evaluate your method of study in preparing for a test as compared with your usual method of study.

The students' answers to question 4, on the whole, showed no consistent or proper method of study in general use. The methods and the number of times each was described were:

Cram	17
Memorize	29
Outline:	
In detail	8
In general	30
Review (without outline):	
In detail	39
In general	35

Select:
- Likely questions 21
- Main points 42
- Their own weak points 5

Suit method to professor 4

Work out development and correlation to get perspective, in order to permit reasoning . . . 24

Visualize position on page 3

The summary is read after this manner. Seventeen definitely said that they cram, twenty-nine memorize, and so on. The terms not all being mutually exclusive, it is not easy to interpret the results. However, even by the strictest interpretation, the mass of evidence may be regarded as "cramming" or "boning up" and nothing more. To the majority of students these are not the terms used to describe true study, but represent methods or devices adopted for the purpose of "getting by".

The set examination does not, therefore, seem to encourage proper study habits.

To question 5, ninety-two replied that their method of study in preparing for a test differs from their usual method of study, while twenty-three said there was no difference between the two. In speaking of their study for examinations, they confessed as follows:

Cram 45

More thoughtful and as a whole 22

Indefinite 4

Of their usual study they said:

Consider important, related points with applications, more thoughtful	26
Do not cram	4
Do not worry	3
Follow own interests	11
Give more time	6
Memorize	1
More pleasurable	3
Outline	1
Do not outline	3
Study more in detail	18
Take more notes	2
Indefinite	3

Some sample statements describing their study for examinations are:

"Cram frantically."

"Hasty, unassimilated mental gorging."

"Memorize all of the professional lectures in one night. After the examination I just as promptly set out to forget them."

"Memorize the points I have reason to think will be asked. (Which is my way of cheating. I forget them within a week.)"

"Study much harder. Try to relate the different parts, to pick out the essentials."

"Try to organize gathered data into certain groups or lines of development."

"More systematic, due to the fact that I leave the organization of the subject till I am ready to study for examination."

Of their usual study, the following are interesting and instructive:

"Do it leisurely, reading rather closely and stopping to apply the theories to instances in my own experience."

"Read other authors beside text, trying to get various ideas and relating them to my previous conceptions. Try to think of value and use of course."

"What is the use studying this lesson in detail, for I shall have

to go all over it again in studying for an examination. Just read. Rarely take notes, were there not examinations to look forward to, I would take more interest in preparing each day's lesson."

"Try to get new ideas.

1. More leisurely.
2. More for personal interest and pleasure.
3. On points direct personal interest.
4. Lead forward by interest.
5. More thought and investigation."

In evaluating their methods of study in preparation for an examination as compared with their usual study as per question 6, the vote stood:

Examination study more valuable . .	24
Usual study	56
The two of equal value	17
Both wrong	1
Indefinite	17

The reasons given by those considering the study for examinations more valuable fell under the heads of (1) more concentrated study; (2) more comprehensive view of the subject; with (3) consequent greater unity. That the usual method of study was superior was asserted because (1) it was without cramming, mentioned by twenty-five; (2) that it was more leisurely; (3) more interesting; and (4) more thoughtful. Those that thought both methods of equal value did not, of course, compare them. The one who declared both methods wrong, a Phi Beta Kappa student, said that both methods "lack fixating repetition."

The evidence in the data of questions 4, 5, and 6, seems again so plain that "he who runs may read." It may seriously be questioned, in view of the fact that ninety-two students in question 5, acknowledged a difference between their methods of study for examination and their usual study, whether they have any real method of study at all. It would seem

fair to assume that if their method is now one thing and now another, it is not and cannot be either a method or habit of any real value. Of the ninety-two, a majority were sure that their usual method of study was the more valuable; or, to put it the other way, that their study for examination was the less valuable. This agrees with the facts in the replies to number 6, in which fifty-six, a large plurality of the total, agreed that their usual method was the more valuable.

It will be noted how the data in numbers 4, 5, and 6, corroborate or substantiate each other, by serving as checks the one on the other.

Viewed thus from the standpoint of inculcating proper habits of study, the set examination would seem to be relatively ineffective.

D. Feelings at Taking Examination.

The feelings of the students at the time of taking the set examination were described in questions 7 and 8. In order that we may have these well in mind it will be proper to restate them.

7. Describe your feelings at the time of taking the test, whether of fright, fear, joy, pleasure, indifference, etc.

8. Are you usually nervous on such an occasion? Why or why not?

It will be noted that in question 7, the cause or causes for their feelings were not asked, and yet in most instances the causes were given. Sixty-six students in all expressed a variety of or mixed feelings. The descriptive terms were again divided into favorable, unfavorable, and indefinite or neutral. The favorable list was comprised of twenty different terms.

Those used two or more times were:

Pleasure	10	Satisfaction, satisfied . .	3
Confident, confidence . .	5	Eagerness	2
Joy, joyous	5	Exhileration	2
Calm	3		

The remaining thirteen terms appeared but once each:

Anticipation	Jubilation
At ease	Like it
Delight	Looking forward to
Desire to show how much I know	Optimistic
	Personal responsibility
Fun to write	Pride
Glad	

"Here's the thing I've been boning for -- the thing I've got to kill in order to get a good mark. Let's go."

The causes given for these favorable feelings were due to, (1) if the examination was fair; (2) if they knew the answers to the questions or felt well prepared; (3) desire to make good. Reasons (2) and (3) predominated, (2) being given fourteen times, and (3) eight times. The first reason was mentioned three times.

Of the unfavorable terms there were thirty-eight, nine of which were met with five or more times, as follows:

Fear	29	Excited, excitement. .	11	Dread	5
Nervous, nervousness	23	Resentment	9	Suspense	5
Fright, frightened . .	15	Anxiety	7	Worried	5

There were seven terms that occurred from two to four times:

Afraid	4	Relief	3
Despair	2	Resignation, resigned .	3
Disgust	2	Tenseness, tension . . .	4
Indignation	2		

The twenty-two remaining terms were employed but once each:

Anger	Displeasure	Not pleasure
As if I were sitting on a bed of cactus tied hand and foot doing penance for an education	Everything but pleasure	Panic
	Forced	Perturbed
	Illness	Reckless
	Irritated	Reconciled
	Not at ease	Rush
Blind panic	Not in happy state of mind	Sore
Dismay		Uncertainty
	Never joy or pleasure	Weepy
		Wish the "ex" were over

Fear of failing, either because of the kind of questions or the lack of time to finish, again is uppermost in the minds of the students as the chief cause of their feelings, it being given sixty-five times. The remaining causes are a miscellaneous lot, such as:

"Afraid to look to right or left for fear I may be accused of cheating."

"To get rid of a bad job."

"As soon as examination questions are put into my hand, as it never seemed so difficult as I had expected it to be."

"Disgust at the manner in which the examination was presented."

"Nervous from anticipation somewhat akin to entering an athletic contest."

"Sore, if I have overlooked some obvious point."

As to the fear of failing, we have such expressions as:

"Fear that I might not know the answers. I have received as high as 98 and have gone home and been put to bed with nervous exhaustion."

"Hands shake so I can hardly write, eyes twitch so I can hardly read, head aches, so my words are a confused blur."

"What is to be will be, and with a little prayer that I may say the right thing, I go in and do the best I can."

"I regard any set examination a gamble. I have never seemed to outgrow it, and I am now a senior at college."

Eleven terms were classed as indefinite or neutral, only two of which appeared two or more times:

Indifference, indifferent	24
Have no time for feelings	2

Those used but once each were:

As a matter of course	Precaution
Do not worry	Shame
Inertia	Surprised
Never very alarmed	Wish I were an encyclopedia
No fear	

Again, it was more or less of a fatalistic attitude that predominated in the causes or reasons for these feelings, such as "do the best I can" which was listed six times. This attitude is well expressed in the samples:

"Do the best I can, and forget it all directly after the test."

"The test is here, and I must make the best of it."

The other causes were such as, (1) plenty of time; and (2) nature of course or examination questions; i.e., easy.

As to whether or not they were nervous at the time of taking an examination, the vote stood:

Yes.	75
No	37
Both "yes" and "no" . .	4
Total . . .	116

A tabulation shows that the strain of fear of failing because of the nature of questions or lack of time to finish, or physical condition is again responsible for such nervousness in the large majority of the seventy-five cases, it being mentioned sixty-five times out of a total of

eighty-five. The other twenty distribute themselves among such causes as, (1) the newness of the situation, being the first examination in that particular course or with that particular professor; (2) realization that the hour has come for which preparation was made; (3) the idea of a contest, or of undertaking something important; (4) amount of work in writing required; or (5) just a natural tendency to be nervous.

A few of the specific causes will have interest for us.

"Have never failed in a grade or course, but am just as afraid as if I had never passed a grade."

"Fearing I shall not have time to finish, or that the reader is sleepy when reading my paper."

"Perhaps it is for fear that I will not pass. I worried so much about the state examination when I was in the eighth grade that ever since that time I have rather dreaded the name."

"Due to fear, dread, late and intense study, loss of sleep, not eating properly, and drinking coffee."

"Due to the fact that I realize 'now is the time'. My whole energies have been at work preparing for this 'time' and when it arrives, I feel it all over."

"Dread the ordeal for so long and lest my memory fail and I be sent home in disgrace."

"I have usually spent so much time in preparation the day and night before that I have worried myself into a state of nervousness."

"The mere word examination sends a shock to my whole nervous system, probably because I recall how I felt while taking certain examinations and am afraid the next one will be like it."

"Many times my mind has been a perfect blank during the hour of examination."

As said, thirty-seven voted "no" on question 8. However, this was not an absolute "no", as not fewer than fifteen showed by the reasons or causes given, that it was really a qualified "no" that they were voting.

Such answers as these clearly indicate this:

"But a bit excited -- an examination usually determines your mark."

"With time I usually get nervous, due to mental and nervous fatigue."

"If test is within the limits of time and my comprehension."

"If we can answer all of the questions."

Besides the fifteen that voted qualified "noes", five acknowledged to nervousness just prior to the examination, or until seeing the questions. The causes offered as reasons for their lack of nervousness arrange themselves under,

Indifference (natural or acquired) . . .	18
Confidence in ability to pass	13
If time enough	7
Only at first	7

A few typical statements given as reasons for the absence of a nervous condition follow:

"Am used to the idea of having examinations."

"If I know it I can write it. If I do not, it is too late to worry."

"Have often found it impossible to eat before such a test, and too exhausted to sleep afterwards."

"Confidence in my ability with respect for the other's ability also."

"Have found that such a condition is quite fatal to any success."

"Sometimes I become nervous thinking about the test prior to taking."

"Probably because I hardly ever failed in one, and because I have never felt it would be a dire calamity to fail."

"It must have been on account of my nationality. We are not supposed to have nerves. Perhaps the extensive use of a leather strap in early school days had some effect. We knew we had to stand it, so why worry."

"What preparation I have made simply has to suffice. No use of worrying at that late hour."

"Too many of my friends present who are apparently bravely 'facing the music,' so why shouldn't I? The soldier going 'over the top' forgets his nervousness in the spirit of fellow feeling with the men who surround him."

The data presented in question number eight would seem to indicate that the statement sometimes made that set examinations are necessary in order to accustom students to meet and to adjust themselves to crises, thereby assuming that set examinations thus effectively do accustom and habituate students to meet and to deal with such crises, is unfounded and not true to the facts. Seventy-five students said definitely that they were nervous on such occasions, four said both "yes" and "no", and fifteen answered with a condition or qualification, so that in effect, ninety-four students acknowledge to such nervousness, leaving only twenty-two students out of the total one hundred and sixteen, or only about nineteen per cent who answered unequivocally "no". In other words, more than eighty-one per cent of the students acknowledged nervousness on the occasion of set examinations. The evidence at least makes the claim that set examinations are effective means in preparation for the crises of life, questionable.

The replies of the students to this division of the questionnaire, the state of feelings at the time of taking an examination, corroborate and substantiate the findings in the first group of questions, that the emotional states produced by such examinations are such as to make set examinations of doubtful value in our educational system. It raises the question whether such values as may attach to set examinations are not gained at too great a sacrifice or cost to the physical and emotional states of the examinees.

E. Evaluation of Set Examinations.

The questions in this, the last group of Part I of the questionnaire, were three, as follows:

9. What is the value of such written tests, as you see it? Give reasons for your answer?

10. What, if anything, is wrong with such written tests?

11. Suggest ways and means of improving examinational methods.

The purpose here was again to learn what was in the students' minds as to the matter of examinations. It was also thought that the answers to the several questions would, in a measure at least, serve as checks against each other. By "examinational methods", in question eleven, was meant the method of the set examination, and students were so advised.

In turning to the summary of question nine, we may say here that the second part of the request, to give reasons for attaching certain values to the set examination, brought no results of any importance. They each simply stated the value they considered set examinations to have, without giving their reasons or authority.

The same difficulty in summarizing the results was also encountered here that was met with in the preceding summaries; viz; the difficulty of finding terms to cover all the cases without duplication. While the terms chosen do not reach this ideal, yet they seem to lend themselves to the classification with a minimum of such duplication, and will serve our purpose in this particular case.

The summary follows. The value of the set examination is:

(1) As mind training and discipline for emotions:

(a) Self control and confidence 5

(b) Training in accurate judgment, selecting essentials, power of adjustment 11

(c) Memory training 17

(2) Give knowledge and skill:

(a) Furnish an apperceptive mass. 2

(b) Practice in written expression. 15

(c) Bird's-eye view 15

(3) As incentive to or inculcator of habits of study:

(a) To keep up work, review, study. 52

(b) To organize, coordinate, and correlate material, to summarize 25

(4) As a measure:

(a) Furnish instructor a basis for grading and check on student 44

(b) Means of promotion. 1

(c) Gives student measure of himself. 11

(d) A goal or reward 2

(5) Negative value:

(a) Of no value, not necessary, or unfair 29

While perhaps nothing conclusive may be drawn from the data above, yet some things are of interest. That twenty-nine students, nearly one-fourth of the whole, should turn aside and give negative values, when the assumption would be, in view of question ten, that

only positive values were sought, is not without its significance. Other items in the summary have their meaning chiefly in the light of other data, and previously reviewed; e. g., the data in (3) above clearly must be interpreted in connection with the data to questions 4, 5, and 6, Part I., the method of study in preparing for a set examination, the usual method of study, and an evaluation of the two. That the holding of set examinations should cause one to keep up his work is, of course, the theory, and important if true; but the manner in which such work is done and whether or not it is actually done are also important, and may be the determining factors in the consideration of values. So also as to the item of furnishing a basis for grading or checking up on the work of the students, while as such means it may be valuable, yet one may well ask, Is it the best means for this purpose? This last question has not yet been answered. This point will be referred to later in the discussion.

What has been said about terms under which to classify the replies to question 9, and others, applies also to questions 10 and 11. Rather loosely, the answers to question 10 fall under the following heads, with the subdivisions and number of replies indicated. The set examination is wrong:

(1) In thought training:

(a) Discourages individual thinking. (Does not give time or opportunity for) 17

(2) Wrong habits of study:

(a) Encourage cramming 48

(b) Set up wrong aims - study to pass rather than subject 9

(c) Encourage carelessness or slacking in daily work 5

(d) Cause waste of time because student does not know what to study. 4

(e) Fail to interest student in subject . . 4

(f) No permanent results 8

(3) As measures:

(a) Method of sampling not true test. . . . 28

(b) Catch questions, unfair; too much depends on examination 54

(c) System of grading uncertain, great variation in marking 7

(d) Questions often poorly framed 12

(e) Test really only ability to pass examination 1

(f) Used not to help student, but only to evaluate him 3

(4) Time element:

(a) Examinations too long for time. 16

(b) Too many come at once. 2

(5) Physical and emotional elements:

(a) Cause physical and mental discomfort. . 31

(6) General or indefinite:

(a) Are absurd 1

(b) Autocratic 1

(c) No connection with life 2

(d) Principle is wrong. 2

(e) Encourage cheating or bluffing. 8

(7) Nothing wrong -- only good 3

The findings here agree in the main with the findings in questions 4, 5, and 6. Note the large number who object to the set examination and the way it is conducted on the basis of the habit of cramming inculcated. Some might be inclined to encourage cramming. The students in the main do not seem to think that it is a profitable practice, or at least of doubtful value in the process of education. They were not asked to express their opinions on the subject of cramming, and that makes it all the more significant that so large a minority in each case should mention it again and again. That so many should question the method of sampling used by the set examination, as not being a true measure of ability or knowledge, or both, and that a much larger number, almost fifty per cent of the whole, should object to it as being unfair, because of catch questions, and because of so much value being attached to any one examination, has its lessons for us. Among other things that it may mean, it certainly does mean that the set examination fails to enlist the sympathy, cooperation, or the interest of many of the students, and just to that degree fails in being true educational means. Also, in our interpretation, the thirty-one who object to the set examination on the basis of the physical and emotional discomfort that it causes, must be noted.

The fact that in an item asking only for defects or negative values, only three students among so many should rise to an unqualified defense of the set examination, whereas in a previous item seeking only positive values, twenty-nine students should as unqualifiedly declare it of no value at all, is not without its meaning.

The next item, question 11, asking for ways and means to improve the set examination, was inserted as a check on the two preceding items in particular, and on all of Part I, in general. To what extent this has resulted, will be brought out in the tabulation of the recommendations which are divided roughly into six classes.

(1) Time or length, frequency, announcement:

(a) Give ample time for 8

(b) More frequent, shorter in time, and of consequent less individual value. 27

(c) Simply shorter as to number of questions . . 23

(d) Announcement

(1) Unannounced 10

(2) Announced longer time ahead. 2

(3) Give questions out in advance 19

(e) Hold at regular intervals 3

(f) Prevent so many coming on same day. 2

(2) Type of examination should be:

(a) Oral or informal 7

(b) Written 3

(3) Nature or character of questions:

(a) Permit choice of questions, personal judgment and reaction 39

(b) Of applied problem nature 31

(c) Broad and general in scope 15

(d) Should appeal only to memory. 5

(e) No catch questions 6

(f) Use catch questions only,

(1) When students are all good with chances to answer good 1

(2) When they have grown lax 1

(g) Train university professors in art of questioning 1

(4) Marks and marking:

(a) Broaden basis of grading, making it class work, papers, reports, mid-terms, finals, etc. 24

(b) Excuse from examination those making 90 per cent or over 1

(c) Professors should read papers 1

(d) Return papers with constructive criticisms. . 1

(e) Grade papers on basis of number of questions answered (in long examinations) 1

(f) Give two-question tests, counting each test only 50 per cent. Take total marks of two tests for one grade 1

(g) Eliminate marking system 1

(5) Organization and Administration:

(a) Improve teaching by organizing courses on seminar plan 9

(b) Do not use as a club, to scare students . . . 2

(c) Let instructor take right attitude and introduce more honor. 2

(6) Abolish or change radically:

(a) Abolish 5

(b) Give self examinations. 30

We must again be warned against drawing any hasty conclusions from the data just presented. However, that such comparatively large numbers should make a plea for more frequent, shorter examinations, with less value placed on each examination, for a wider range of choice of questions, with the privilege of personal judgment and reaction, that examinations should be more practical or of the applied problem nature, and that the basis for grading or marking should be made broader, so as to include class work, class reports, papers, mid-terms, finals, and so on, bears its meaning with it. It means that in these respects, a large group of students have found the set examination lacking; and they seem to think that as examinations are now organized and conducted, students are not given the opportunity to do full justice to themselves. The wide range of remedies proposed means that in a similarly wide range have set examinations, to that degree at least, proved weak or inadequate.

It was to be expected, of course, since all of the students answering the questionnaire were familiar with the self examination, and since its use seemed superficially at least, to be generally satisfactory, that a number would mention the substitution of the method of the self examination for the set examination; but the actual number so mentioning it was surprisingly large, in view of the fact that Part I in no instance alluded to the self examination. It is also interesting to note in this connection that so many as nineteen made the suggestion that the questions be given out in advance of the actual examination. To adopt such a plan

would be to approach the method of the self examination, as would also, in a measure, the applied problems examination.

Enough has been shown in the data to indicate that the set examination, so far as this group of students at least is concerned, has been weighed and found seriously lacking.

CHAPTER V.

DATA ON SELF EXAMINATION AND INTERPRETATION.

A. General Statement.

For the meaning of the self examination we should perhaps refer again to the statement of meaning and description that was given in Chapter III of this study.

Part II of the questionnaire, "Some Phases of the Self Examination", divides into five groups instead of four, as did the one on the set examination.

(1) The feelings at announcement with cause.

(2) The method of study followed to prepare, with an evaluation.

(3) The feelings at the time of taking.

(4) An evaluation of the self examination and comparison with the set examination.

(5) Probable effect on the study habits and power of memory, if the self examination should come into general use.

The plan of the summary and interpretation in the last chapter will be followed in setting out the facts and meaning of the inquiry into the self examination. In general, there were one hundred ten replies received to this part of the questionnaire.

B. Feelings at Announcement and Causes.

The questions in the first division were two, as given below:

1. Analyze or describe your feelings on hearing the announcement that you will be expected to present a manuscript prepared as a self examination, at a certain time, whether of resentment, fright, fear, pleasure, joy, indifference, etc.

2. Try to assign a cause for feeling as you did toward the matter. Give the cause.

The terms used by the students in describing their feelings or attitudes, were again divided into favorable, unfavorable, and indefinite or neutral. The several descriptive terms under these headings, together with the times of their occurrences were:

Favorable	27
Unfavorable	8
Indefinite or neutral . . .	21
Total	56

Five of the twenty-seven favorable terms were used seven or more times:

Pleasure, pleased	42
Relief, relieved	10
Interest, interested . . .	9
Joy	7
Satisfaction, satisfied . .	7

The following five appeared from two to four times:

Glad, gladness	4
Curiosity	2
Delight, delighted	2
Happy	2
Surprise	2

The remaining seventeen occurred but once each. They were:

A chance to express myself
All right
Calculation as to what I shall write and how I shall treat it
Composure
Desire to assert myself
Enthusiastic
Exhilaration
More satisfying
Nothing like my feelings toward the set examination
Pleasant anticipation
Pleasant sort of humor
Pride
Problem to be done
Thoughtfulness
Thrill
Welcomed
What manner of man is this that no "exams" will decorate the board?

The table used as the elements in constructing random functions or statements, were again drawn from Kemeny, Cohen-Sussman, and Dartmouth in general. The average characteristics found during these functions, together with the times of their occurrences were:

Transfer	7
Conditional	3
Initialize or Execute	2
Total	12

Five of the random-error functions found were most common, as follows:

Missing, illegal	4
Bad var, illegal	3
Illegal, illegal	2
EOF	1
Variable not initialized . . .	1

The following data summarized from the 14 other tests:

Bad var, illegal	1
Illegal	1
Variable initialized	2
Exec	1
Missing	2

The frequently functional errors had some basis. They were:

1. Failure to initialize array?	(Example initialization)
2. Exec error	(Example array of length 1)
Inconsistent use in edit 1	Error
Edit: Error not in 3	Failure to do edit
Edit: Exec in 1	Transfer failure
Conditional	Test 1
Failure to initialize array?	Conditional
Initialization	(Test number 1) in 1 1 1 1
Initialization	Define "Name" 1 1
Case mismatch	Example file input
Missing data or Editing	
Insert the end statement	

The causes given for the "pleasure" expressed at hearing the announcement of a self examination with the number of times given are tabulated below:

Opportunity for self-direction and expression . . .	38
Time enough allowed	13
No set examination to dread	6
No cramming	4
More benefit -- better memory training.	4
Because of novelty.	3
Opportunity to get general view of subject.	2
Fair, Conducive to honor.	2
Constructive criticism received on this, and discover my own weak points	2

All of the specific reasons for this feeling of "pleasure" would be too many to reproduce, but a few of them will be indicative both of their tone and quality.

"It was something new, and gave me the feeling of a different sort of responsibility thrown upon me."

"It was up to me to make good and not to try to cram."

"Since I can control the situation and do it when and where I please."

"It has resulted in my taking even greater interest in the subjects than I might otherwise have."

"Do not have to sit down in a close crowded room and write for an hour without thinking."

"Knew that I would have time and interest to make the manuscript worth while."

"Conducive to honor and really searching as to real good in the course."

"I probably felt pleasure because it was not to be a written (set) examination, and probably because my experience with the self examination is so limited."

"It is an attitude of fairness toward myself as a student, and not an attempt to grade on a narrow range of questions as in a set examination."

"That I am to work out problems that have come up in my mind."

"An appreciation of the worth of the self-examination, from the standpoint of educational psychology."

"The paper gives you more chance to think out actual experiences and to apply things to your own case."

"Due to a desire to be able to master the given material and then to express it in my own words as it appears to me."

"I like the matter of self analysis in order to find my weak points -- to arrange the points of a subject into the whole and understand their relation to each other."

"I felt that I could discuss fully any topic and knew if I did not exactly coincide in my view with that of the teacher, my views would be respected."

"Because of experience in both methods. In the case of the set examination it is a continued period of fear and worry until after the examination is over; i. e.,wonder as to what the questions will be, or if you are studying the correct things."

"I have time to go over my material, mark it out, plan it, bringing in my own personal reactions on the subject, and thus I take an interest, which causes me to retain the knowledge I have gained."

The reasons offered for the other favorable feelings classified about as those stated in the case of "pleasure."

Opportunity for self expression and self direction . .	40
That it was not set examination	21
Because it was new	6
Gave plenty of time	6
Fair	5
More benefit.	4
No cramming	4
Chance for review	1

Combining the two tabulated lists, we have as causes for the favorable feelings toward the self examination the following reasons,

with the number of times each was given:

Opportunity for self expression	78
That it was not set examination	27
Time enough allowed for	19
Because it was new	9
No cramming	8
More benefit.	8
Fair.	7
Opportunity for review.	3
Constructive criticism on my paper.	2

Additional specific causes may have a further interest for us.

"Not so impersonal as a formal examination, rather a part of yourself."

"I was to receive all the benefits of an examination without the dread and worry of one."

"It was a new style to me. My idea of going to school was always connected with exams. I became interested in the 'dry' subject of pedagogy."

"Due to the fact that it wasn't the old formal examination which always struck terror to my soul."

"I know that much depends upon my work and ability to understand what I read, so I work happily, believing I am really doing myself a favor by working."

"A relief from the old set examination. Offered an opportunity for a natural expression of impressions - an outlet for the mental stimulus generated by the course."

"There weren't innumerable facts that must be crammed into one's head only to be forgotten."

"Gave me a feeling of having a chance to create something as well as to get a grade."

"Seems to me to be the fairest kind of an examination that I have ever experienced."

"A cause might be the big 'I' which causes us to wish for a chance for self expression under conditions more favorable than those allowed in a classroom and when reflection can be made."

"I have been brought to realize that by this method I can get most out of a course and eventually be able to pass a little on to some one else by thinking problems through by deviating from a text book or some one else's opinions."

"It stimulated confidence in myself and gave me courage to proceed."

There were but eight unfavorable terms made use of in describing their feelings. only one of which, "resentment, resent it," employed six times, was used more than once. The other terms were:

Annoyed	Weariness
Fear	What is the use; what good will that be?
Frightened	
Tied down	Worried

The grounds for these attitudes or feelings were mainly the four, as tabulated below:

Did not understand what was wanted . .	6
Press of other work	6
Lack of interest	1
Thought unnecessary	1

The five samples of statements of causes quoted will suffice to show the nature of such causes.

"Did not know just what was meant."

"It meant a little extra work if I intended to enjoy a week-end entertainment away from home."

"I thought it was asking too much, because I did not know the subject thoroughly as a teacher is expected to do."

"I have developed a habit of listening to other people thinking things over, and keeping my ideas to myself. If I spilled my ideas right out the first thing, I would have opposition. I suppose it is my habit of reserve that makes me take rather slowly to the self examination."

"My first impression was that to remember all the important facts and write them down without the added suggestion of prepared questions would be rather difficult."

Of the indefinite or neutral feelings there were twenty-one in all. Of these twenty-one, but one appeared more than twice:-

Indifference, indifferent 21

and but three others that appeared so often as twice each, "as a matter of course," "puzzled," and "surprise." The remaining seventeen were given but once each. The list is:

A little queer	Come-what-may attitude	To determine just what time would be most convenient to prepare.
Anxiety	Dumfoundment	Trying to figure out what was meant
As regular assignment, part of course, task.	Get busy	Utter astonishment
Between indifference and the willing phase	Lost	Utterly at a loss
Bewildered	Of duty	
	Perplexity	
	Resignment	
	Shame	

In accounting for these feelings, the students again offered, of course, various reasons. However, these reasons, after inspection, somewhat readily reduce to four or five main classes, with several scattering ones. In order of the times occurring, a tabulation shows the results as follows:

To be expected -- regular assignment . . .	14
Novelty of the method	12
Time enough granted	7
Confidence in self	5
Not interested	3
More careful study required.	2
Self expression.	2
Anxious to accomplish task	1
Not a gamble	1
Shame, if not been fair to teacher	1

From the general statement of causes listed above, one could construct many of the individual reasons as set down. Some of the typical ones may not be without interest, however.

"It was a new situation, and consequently I did not know how to act."

"It was to be expected in a course of this sort."

"I don't mind the task of writing such a paper."

"Expect to be able to do the work but am not particularly interested in it."

"It seemed a matter in no wise out of the regular line of assignment."

"Made a failure of the first one, and did not know how to make this one successful."

"Did not know whether it was to be a simple introspection relative to the subject matter or a self administered old set examination."

"A self examination means to me the writing down of the thoughts that would come to me in preparing for a set examination, and so it does not bother me one way or the other."

"Have more time to arrange my thoughts and really put down what I feel as most important and what I am interested in."

An analysis of the summaries of the data in questions 1 and 2 shows first, that the twenty-seven different favorable terms were used altogether one hundred four times, or an average of nearly four and one-fourth times per term; second, that the eight unfavorable terms were used thirteen different times in all, or a little more than one and one-half times per term on an average; and third, that the twenty-one indefinite or neutral terms occurred forty-four different times, or just a little more than twice per term. If the unfavorable and indefinite or neutral terms are combined, together with the number of times each occurred, the twenty-nine terms appear fifty-seven times, or one less than twice per term on the average. It would thus seem that the favorable terms are

more than twice as popular as the unfavorable and indefinite or neutral combined.

The averages given above may not mean a great deal; but that among the causes for the favorable feelings toward the self examination, the opportunity for self-expression, self-direction, personal reaction, individual judgment, and the provision for the special interest of each individual, should occur seventy-eight times in a total of one hundred four cases, is of predominant significance. Also, the fact that twenty-seven students of the one hundred nine should definitely give as a reason for their favorable feelings that it was not to be a set examination, is not to be overlooked. However, we may not thereby conclude that in the estimation of these the self examination was all right. It may have meant not that they loved the self examination more, but that they at least loved the set examination less. It is worthy to note, too, that the time allowed for the self examination was mentioned altogether nineteen times in the one hundred four cases. Other causes that deserve favorable mention are, (1) because it was new; (2) because it required no cramming; (3) that it was fair, and (4) the general statement that it was simply more beneficial.

Of the eight unfavorable terms, occurring in all only thirteen times, only one, "resentment," was responsible for nearly one-half of the total. An analysis of the reasons presented as causes for these unfavorable feelings shows that out of fourteen specific statements, seven of them have little or no connection with the type of examination, but were due to the time of the announcement or announcements, or lack of interest in the course. Six others are accounted for because of the newness of the

situation as an examination, while the last or fourteenth gave as a cause that he was already doing and had done what the self examination was requiring of him, and he therefore thought it altogether unnecessary.

Of the forty-four occurrences, of indefinite or neutral terms used, again a single term, "indifference, indifferent," was responsible for nearly one half of the cases, occurring twenty-one times. A classification of the causes for this indifference shows the following results:

Similar to regular assignment	9
Plenty of time	4
Self confidence	3
Not interested	3
Must be done, why worry?.	2

As was stated in Chapter IV, in connection with this same phase of indefinite or neutral terms, that such terms in reality may be counted as unfavorable, for to the degree that a method fails to arouse interest, support, cooperation or favorable reaction, to that degree it may be regarded as failing. It may however be said that to accept a situation, requirement, or assignment rather as a matter of course for the reason that you feel that you have time enough to do it may not be altogether a bad feature. A further investigation shows that the novelty of the method was in part responsible for no fewer than twelve cases of the unfavorable attitudes toward the self examination. It would seem fair to say that a further acquaintance with the method would very probably convert some of these unfavorable to favorable cases. It would also appear that a number of the students interpreted the question to ask for

their respective feelings and attitudes on hearing the announcement for the first time. If that is true, it might also be fair to assume that these were not their several feelings after they were once familiar with what was wanted.

C. Habits of Study and Their Evaluation.

It would seem to be a truism that proper habits of study are fundamental in the process of education. It is also just as evident that little or no attention is being paid in our educational system to inculcating such proper habits of study. The emphasis is placed on the learning of so much content or material, and the testing to determine whether it has been learned, with practically no concern on the part of many instructors being given to the way in which it is learned. One of the prime purposes in education should be how to locate and define, how to attack, and how to solve problems, and that means, of course, how to study. Examinational methods should be judged in part by their effectiveness in encouraging and establishing valuable and proper habits of study. To what extent the method of the self examination does these things, as experienced and judged by the group of students whose replies are here considered, will appear in the summaries of the second group of questions in the questionnaire. This group is comprised as below:

3. Describe your method of study in preparing a self examination manuscript.

4. Does your method of study in preparing a self examination manuscript differ from your usual study method? If so, describe the points of difference.

5. If your method of study in preparing a self examination manuscript is different from your usual method, evaluate your method in preparing the self examination manuscript as compared with your usual method.

In making a summary of the procedure followed by the students in preparing the self examination manuscript, the descriptions or analyses of the several methods, the results are as follows:

Select subject or phase to be treated . . . 16

Review, pick out main points, chief factors, principles, etc., ... 74

Supplement by outside reading, discussions with others, personal experiences, etc. 70

Outline, organize, write out, with interpretations 70

Not voting 5

Quotations from several of the actual replies of the students will serve to throw more light on this most interesting phase of the problem.

"At first I go over the main points in the reading and notes jotting down anything which catches my attention as having possibilities. Then I go over the list jotted down and try to formulate my ideas conjured up by their presence. Next I choose the topic which seems most far-reaching or interesting and work out a theme round it going to the reading matter and notes to assist me in every way possible."

"I look at the titles of the chapter to see the general subjects treated, then I look over the headings of the various topics treated and over what I have noted, in my study, that appealed to me . . . I then try to analyze in my mind what the fundamental thread is that the author is developing, try to think and determine what are the important facts in the problem and then, before commencing to develop my paper, I try to state as clearly as I can, in an introductory statement the fundamental nature of the problem and what my aim will be. I then proceed to develop my manuscript along that line as best I can."

"In preparing a self examination, I try to think over the subjects and material covered during the period under consideration without reference to my notes. I buttonhole some other member of the class and discuss various points in the study, or get him in an argument over certain issues. Then, with my notebook before me, I project my own opinions, theories, and conclusions through the material emphasized by

the notes which I have taken. Some notes may be completely disregarded and others greatly expanded."

"(a) Mapped out work in my mind.
(b) Took notes upon subject.
(c) Compiled notes, organized and wrote paper from my viewpoint."

"A search of impressions gleaned from the course to find the points that stand out -- a voyage of discovery full of interest and thrill. Then a review of the notes taken, and a further examination of the text (and other books) to verify these impressions. Then a digestion of the data and a formulation or organization of ideas."

"I try to determine that which is the most important element (or elements) in the work and so on. It therefore becomes a very personal thing and one becomes very interested in it, because it is like solving a problem. This causes us often to study it more carefully and to a greater extent."

"In contrast to the old method, in preparing a self examination manuscript I find that the subject matter has to be considered thoughtfully. This is not necessarily so in preparing for a set examination. It is possible to memorize enough of the subject matter to pass a set examination without even a glimmering of understanding of what you have memorized. This cannot be done in preparing a self examination, because it is necessary to think until you do understand clearly. And that is my method of study -- first to be sure that I do understand the subject matter, think it over from as many angles as suggest themselves, and then to go ahead and write the paper."

"The method of study for the self examination cannot be confined to cramming. When I know that a self examination will be expected at the end of the course or at certain intervals I am constantly aware that something more than mere facts will be necessary to write a satisfactory paper. Every problem presented suggests some interesting aspect when we allow our minds to play with it. The old set examination prevented such reflection."

In question 4, the students were asked whether their method of study in preparing a self examination differs from their usual study method, and if so, to state the points of difference. The vote with the points of difference is set out in the following tabulations.

(1) Yes, does differ 39

(a) More discriminating, thorough, or definite . . 30
(b) More time given. 4
(c) Do not cram. 8
(d) More interest and personal reaction. 9

(2) Yes, (qualifiedly-thought it shoud not). 9

(a) Only more general. 4
(b) Only as to time 1
(c) As to interest and personal reaction 6

(3) No, does not differ. 15

(4) No (qualifiedly) 18

(a) Except wider in scope. 18
(b) No cramming. 6
(c) More personal reaction 7
(d) Only as to writing it out 1

(5) Compared to study for set examination instead of to usual method 25

(a) No cramming for self. 18
(b) More time to set. 1
(c) More personal reaction to self. 10
(d) More free and calm in self. 2

(6) Not voting 3

Although the points of difference between the two methods of study set down by the student, or the explanations offered, seemed to contradict the "yes" or "no", yet the vote was recorded on the basis of such "yes" or "no" and not in accordance with the points of difference or the explanations presented.

The vote also shows that the question was misinterpreted, as indicated by the relatively large number who compared their study for a self examination to that for a set examination. This misinterpretation is further shown in the points of differences between the two methods,

in some of the other cases as set out above. Such points of difference clearly show in some instances that the student must have had in mind the set examination with which to compare his study for the self examination.

The issue was perhaps not quite so much confused in question number 5, in which they were asked to evaluate their study for a self examination and their usual study method, though there is also some evidence here that there was misinterpretation. The vote in question 5 stood:

Study for self examination more valuable	72
Study for set examination more valuable	1
Usual study more valuable	1
Both methods of equal value.	14
Indefinite	18
Not voting	2
Total	109

Those who decided that the study for a self examination was the more valuable, based their decisions on the following reasons:

Calls for better organization	36
Creates better mental attitude, personal reaction, interest	25
Better memory training.	15
Allows more time.	3
Because writing it out.	3
Everyday lessons should be studied this way	1

The one voting in favor of study for the set examination as the more valuable, gave as a reason that such study "trains one to remember," while the one declaring for the usual method of study said, "I get knowledge by my first impression." The fourteen students who agreed that both methods were of equal value did so for the reason that the one was but a continuation of the other; i. e., they

were one and the same method. In the case of eighteen students, the replies were indefinite or else did not pertain to the question.

Characteristic remarks or reasons for considering their study for self examination the more valuable are represented by the quotations to follow:

"The big things concerning the work stand out."

"It gives me an inspiration and incentive for more study and research."

"The ratio of my usual study to my study for a self examination is as 1 : 3."

"The things I get will stick."

"It is the difference between thinking and boning."

"It constitutes the expression of my impressions."

"It forces one to take account of stock."

"There is more place for initiative."

"It tends to make a student to think a thing through."

"The knowledge is understood and retained -- worth 100 per cent."

"It provokes initiative and creative thinking."

A review of the summary of the methods of study followed in preparing for a self examination shows that nearly sixty-eight per cent of the students aim to pick out the main points, chief factors, or important principles, and that more than sixty-four per cent supplement the regular material of the course by outside reading, discussions with others, and personal experience, after which they outline, organize, and write the manuscript, with such interpretations as they may have to give.

It will be readily observed by those who are familiar with the conditions of reflective thinking how that study for the self examination approaches such conditions rather nearly. If it should be pointed out that the reason for this near approach to the conditions of true thinking arises out of the instructions or directions given to students in announcing the self examination and in explaining it, the proper reply would be that that is exactly the purpose of the self examination, to aid in and to cultivate proper habits of study, and to conform to the principles of true thinking. It would seem, therefore, not to be overdrawing to conclude that the method of the self examination is a very decided factor in developing proper habits of study and in bringing about reflective thinking.

When it comes to the matter of differences between their study for the self examination and their usual study, only about thirty-six per cent voiced an unqualified difference, and forty-four per cent., counting both the qualified and unqualified "yes" vote, specified a difference between the two methods of study; whereas, over thirty per cent. expressed no difference whatsoever between their usual study and study for a self examination. If the twenty-five who compared their methods of study for the set and the self examination had made the comparisons asked for, the results above given would undoubtedly be changed somewhat. The figures might also be different if the apparent misinterpretations on the part of those who voted "yes" or "no" on the issue, were cleared up.

In the light of the situation as pointed out above, it is really difficult to interpret the seventy-two votes cast in favor of study for the self examination as the more valuable, as we do not know whether many of them were comparing their study for a self examination with the one or the other, - study for a set examination, or the usual method of study. The reasons given for declaring in favor of preparation for a self examination would in a large measure indicate that here again the students were comparing study for the self and set examinations; for, with any other explanation, there would be no reason for the relatively large number who voted for the self examination study on the basis that it creates a better mental attitude, provides for personal reactions, individual interests, and so on. It has not been their regular study of which students have heretofore complained, but of their study for the set examinations, and it would be rather unusual to have them complain of their regular study in their replies to question number 5. It is more than likely, therefore, that they were here indirectly complaining of their study for the set examination. The specific causes quoted directly from the answers of the students, in several cases, and in many instances of those not quoted, would lead us to believe that the students had the set examination in mind when writing out these causes.

D. Feelings at Preparing Self Examination.

The problem indicated above is found in questions 6 and 7 of Part II of the questionnaire. These questions are:

6. Describe your feelings at the time of preparing the self examination manuscript whether of resentment, fright, fear, joy, pleasure, indifference, etc.

7. Were you nervous when you prepared the self examination manuscript? Why or why not?

In listing the terms used in reply to question six, we got as a result:

Favorable	33
Unfavorable	10
Indefinite or neutral	8
Total	51

In the favorable class, of the thirty-three terms used, four of them appeared seven or more times.

Pleasure, pleased, pleasurable	42
Interest, interested, interesting	30
Enjoy, enjoyable, enjoyed, enjoyment	9
Satisfaction	7

Five occurred two to three times each:

At ease	2
Calm	3
Confidence	3
Eagerness	2
Joy	2

And twenty-four were given but once each. The list was:

Absorbed
Agreeable
Alertness
Collected
Completely absorbed
Composed
Curious
Desire to contribute the material to the very best of my ability.
Desire to express myself.
Enthusiasm
Gratitude
Growing and unwilling interest.
Humor
Independence of thought
Merely a thinking process.
More time
More pleasant
Normal
Physical room
Pleasantly excited
Pleasantly interested
Rational
Relaxation
Working interest.

The thirty-three different terms classed as favorable appeared in all one hundred twenty-four times, or on an average of more than three and three-fourths times per term. Two terms, "pleasure" and

"interest," were alone responsible for seventy-two occurrences, or fifty-eight per cent of the cases, and the four terms used seven or more times were responsible for nearly seventy-one per cent of the total, leaving twenty-nine terms to account for the remaining twenty-nine per cent of the cases.

While in question 6 of this group, the students were not asked to state the cause or causes for their feelings, yet in nearly every instance did they do so. An inspection of the several reasons shows that they fall into the groups below, with the number of occurrences in each case as set opposite:

Due to opportunity for personal reaction, freedom, etc., . .	50
Interest in subject or problem	13
Time sufficient	8
Not memory work	4
Confidence in my ability.	2
Fairness of examination	2
Not set examination	2

The specific statements of the students giving their several reasons for their favorable feelings were most interesting, as usual. The following will show their nature and content:

"Anxious to do more research work."

"A new kind of pleasure -- the enjoying of an examination."

"Discovered new threads in the course and their connections."

"I know my work is mind work rather than memory."

"A very personal interest. We want it to show our best work."

"Brings course more into touch with my own experience."

"To get my reactions across clearly, not merely to answer correctly for a given mark."

"Like a sailor on unknown seas, or an inventor of a new idea."

"Curious -- as a child constructing a map. Wanted to see how it would come out, and how different points fitted in."

"It gives me a feeling of working for my own benefit, and not the instructor's alone."

"In endeavoring to express myself well, due probably to the lack of restraint either as to time, subject matter, or fear of failure."

"Merely a thinking process such as one meets all the time in life; i. e., solving problems as they appear in your own mind."

There were ten terms in the unfavorable class, only one of which, "disgust," appeared more than once, it being used but twice. The list of the other nine is:

Don't-want-to-do-it-ness	Insecurity	Resentment
Dissatisfaction	Frightened	Useless waste of time
Driven	Objection	Worry

The ten terms thus appeared eleven times, or an average of just a little more than once per term.

The reasons for these unfavorable feelings were:

Not understanding method 4
Appreciation of lack of preparation 2
Extra work entailed 1
Against whole scheme 1
Lack of interest 1

Some specific statements of causes:

"I did not know how to go about it."

"Felt that it was a very difficult task."

"Writing always provokes a feeling of disgust with my mode of expression."

"My interest was not natural."

A majority of the objections offered were seen not to be due to any inherent quality or factor of the self examination, and had really no connection with it as such, but were due to factors entirely external. Further acquaintance with the self examination, it would thus seem, should remove most of those objections.

Indefinite or neutral terms came in for a smaller share of the total number than did the unfavorable ones. Of the indefinite or neutral feelings mentioned, there were only eight in all, with a total appearance of fourteen times. One of these, "indifference-indifferent," is to be credited with seven of the total fourteen occurrences, or exactly fifty per cent. The other seven, used but once each, were:

As a matter of course	No distinct emotion
Determination	Resignation
I don't know where I'm going, but I am on my way.	Something to do
	Duty

The indefinite or neutral terms, it will be seen, were used on an average of not quite twice per term. Of the reasons given to explain these feelings, it was found that they arranged themselves under the following heads, the number of times such reason was offered appearing at the right.

As regular or assigned work	6
Indefinite	4

The quotations given below will serve as samples of causes:

"I have a paper to do and must do it."

"Taking it as a matter of course, instead of the regular assignment."

[illegible] of the [illegible] [illegible] [illegible]

Turning to the seventh question, which sought to learn whether or not the students were nervous when they prepared their respective self examination manuscripts, the inquiry showed:

No	103
Yes	3
Worried	1
Not voting	2

The specific statements as to the reasons for the lack or absence of nervousness varied, of course, as one would expect that they would; but the underlying causes for such freedom from nervousness were after all relatively few. A tabulated result shows the causes and times given:

Plenty of time	52
Opportunity for self expression	48
No fear of failing	29
Knew what to do and how	19
No reason for nervousness	16
Manner of taking, environment	7
Fairness	5
Do not know	2

We shall have space for only a few of the statements by the students as to why they were not nervous. Let it be said here that in general the remarks were of the same tenor as those quoted to illustrate the answer to questions 2 and 6 of Part II of the questionnaire.

"One feels in writing a self examination that there is a fighting chance of doing one's self justice - time to think, to study and something definite in view on which to work."

"There was nothing to be afraid of. I was working out an idea of my own in the best way that I could at the time and whether the idea was worth anything or not really it was <u>mine</u> <u>own</u> and I was ready to stand sponsor for it."

"I realized that I had a splendid chance to show just what I had gotten out of the work covered."

"I was not taking a chance or depending on my guessing ability."

"Because I was not working from the outside in, but from the inside out."

"Because I was interested I was more or less pleased - fear and pleasure do not mix well."

"I did not feel the intense strain of make or break on the issue. Besides I was writing briefly, and of the things I had thought about from my own point of view. I did not seek to reconcile it with the instructor's."

"No. It was more like a friendly chat."

"No, because interest and nervousness are not correlated to me."

"I was not nervous because I was doing a very natural process -- thinking, plus formulating my ideas."

"Because of a feeling that it was my paper and not the reader's or professor's paper that I was writing."

"I am not confined to fifty minutes in an overcrowded classroom."

"Possibly because I can go over my work and improve, etc., while in a set examination, that which is down, remains, no time for going over, etc."

Three people said definitely that they were nervous at the time of preparing the self examination manuscript, and one acknowledged to being worried. Since the vote was small and the reasons for this physical state or condition but few, we may here quote all such reasons:

"Did not know just how to prepare it and when I thought of the grade that might follow."

"Only when trying the first one."

"Had never had such an examination before and wondered just what was expected."

"I realized that I had a solution to offer you, but
I had spoken and he had been convinced."

"A man can receive a lesson or admonition on the grandest scale."

"Because I was thinking that the Infinite is, not that God
is."

"Because I was introduced I was sorry or been pleased - that
and to answer do and sin [illegible]."

"I did not find the [illegible] service of duty or [illegible] on the
[illegible]. Whether I was working [illegible], and of the [illegible] I had
thought [illegible] from my [illegible] or [illegible]. I did not need to [illegible]
[illegible] with the [illegible]."

"Yes. It was more like a [illegible] [illegible]."

"No. Various [illegible] and [illegible] are not [illegible] to me."

"I had not [illegible] because I was [illegible] a very [illegible] [illegible] --
[illegible] [illegible] [illegible] [illegible]."

"Because of a [illegible] that I was [illegible] [illegible] and [illegible] [illegible]
or [illegible] [illegible] [illegible] I was [illegible]."

"I am not [illegible] [illegible] [illegible] to [illegible] [illegible]."

"[illegible] [illegible] I [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] a [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible]."

"These points [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible]

"That I might not do as well as might be expected, as a result of the opportunity for good original work."

"One has other work to do and worry is about neglecting other work. Also, about completing the manuscript on time."

Several of the reasons above clearly show that such nervousness as there was, was due to the newness of the thing they were undertaking and not because of the nature of the examination itself.

In reviewing the data of this division of the questionnaire, several facts seem to stand out rather prominently above others:

(1) That the self examination is conducive to a proper emotional attitude or condition on the part of students.

(2) That it enlists to a very marked degree the sympathy, interests and cooperation of the students.

(3) That these conditions are due to the freedom and opportunity for personal reaction or self expression that the self examination provides or permits.

However, all of these conclusions must be further considered, in the light of the data yet to be presented, and then again in the light of all the data taken together as a whole.

E. The Self Examination Evaluated.

The questions of this division had for their purpose to secure a direct estimate from the students themselves of the value of the self examination by considering (1) both its strong and weak points; and (2) by a direct comparison with the set examination. The specific questions were:

8. What is the value of the self-examination method as you see it? Give both the strong and weak points of the method.

9. Compare the method of self examination with the usual set examination.

By listing and tabulating the strong points of the self examination as given in the replies to that part of question 8, we find that they group themselves under about five classes. These classes or groups, with the vote for each are:

1. Provides for self expression, personal reaction, initiative, originality, special interests, etc. . 81

2. Inculcates proper study habits, eliminates cramming, aids memory, requires organization and thinking of subject matter, to show relations, give subject unity, etc. 86

3. Produces proper or normal emotional states 43

4. It is fair, gives time enough, etc. 41

5. As a measure in general 24

It will also be interesting to give the votes on some of the specific items:

Eliminates improper emotional states	33
Aids retention or memory	26
Eliminates cramming	17
Gives time enough	32
Provides for self expression	22
Allows individual judgment	36
Provides for special interests	14
Arouses interest	14
Creative work, research	10
Requires initiative	16

We may perhaps throw still further light on this by making a few quotations in their entirety from some of the answers of the students themselves:

"To my mind the value of the self examination is summed up in this: it obviates much of the resentment and all of the nervousness

5. Diagram the method of [illegible] the small and medium [illegible]

To [illegible] and [illegible] the [illegible] values of the [illegible] [illegible] as given in the regular [illegible] of [illegible] 9, on [illegible] [illegible] [illegible]

incident to a written (set) examination, it causes one to read the prescribed text more thoroughly and willingly, and since the reading follows a developmental study it is assimilated in a rational manner which stands more chance of being remembered after the course is over."

"It gives the student an opportunity to do some creative work and interests him thereby making him work in a way that will really benefit him."

"The self examination gives the student an opportunity to develop a subject in which he is especially interested. It gives him the opportunity to show his judgment in determining important points and developing them clearly and logically. It relieves him of a nervous strain. It relieves him of the cramming required by a formal test and gives him that time to spend in thoughtful preparation of a definite piece of work. As mentioned above, he feels that the instructor's aim is to help the student and not simply to determine the amount of knowledge possessed."

"The value of the self examination method, from my experience, is that it gives the student an opportunity to show whether or not he really has an understanding of the subject by giving him the entire field to write from, and time to think, to analyze the subject and to organize his thoughts. It entirely eliminates the objection often raised by students, that the questions are not representative questions and that while one question may be asked which he cannot answer, while he could answer several more equally representative questions. It also eliminates the fear, of having but a short limited time in which to answer so many questions. Certainly a self examination manuscript eliminates these objections and shows the student's power of interpretation and whether or not he has the problem in mind. This also affords the instructor a way to judge of the student's ability to interpret the facts and to find the essential issues."

"The value of the self examination may be said to be:

"1. The fact that it makes the student definitely express his thoughts and allows of no doubtful expression.

"2. The fact that it gives to the facts and ideas their varying degrees of importance and makes the student to see the inter-relations of these same facts.

"3. The fact that it causes information to be doubly sure by having it taken in in two different ways by the sight: first, by reading; second, by writing, and to see it on a written page. So we have two paths instead of one.

"4. The fact that the instructor can be sure each pupil is doing the assignment if written work is demanded.

"5. The fact that it eliminates all nervousness and thus allows each one the same opportunity of making good."

"Strong points:

"1. Compels the student to think and organize the material in his experience.

"2. Calls for more study and exertion on the part of the student.

"3. Gives the teacher an idea of where the interest of the student lies.

"4. Eliminates cramming, and nervousness on the part of the student at time of examination.

"5. Stimulates discussion of subject matter outside of classroom and exchange of ideas between students."

"The strong points of the self examination are: It is training in thinking along the lines of the fundamental principles instead of trying to memorize facts. It is training in making other people's ideas your own by rearranging them to fit your own experiences. It enables the student to study along the lines where he is most interested, and is therefore able to be more efficient. It teaches the student to have ideas of his own."

"Strong points:

"1. More fair -- slow pupils not pressed for time.

"2. Tends to develop research habit -- search for truth and not what pleases teacher. Hence adapted to older students.

"3. Helps the teacher to determine more correctly the effect he is producing.

"4. No temptation to cheat.

"5. An outlet for stimulus.

"6. Helps pupil to organize his thoughts as he goes along.

"7. Develops individuality.

"8. Conserves time -- no time wasted on extraneous facts."

According to the replies of the students, the weak points and the relative weights of such possible weak points are:

1. May result in bad study habits 57

2. May lead to unfairness, cheating, plagiarism, just to get by 31

3. Tends to destroy basis for marking, difficult to administer 21

4. Lacks universality as incentive to study by instilling fear, etc. 10

5. Miscellaneous, student may not understand, indefinite, does not fit into scheme 6

Some of the specific items and their votes were:

May not require proper amount of review and grounding in subject 31
May allow students to get by 14
Might lead to mere summarizing. 10
Not a memory drill or contest 17
May lead to carelessness 15
Students may rely too much on books 11

It is of significance that twenty-three students voted no weak points of the self examination. It is also interesting to note that the alleged weak points were stated mostly in the potential and not in the indicative mood. A few direct quotations from the students' replies will show this point clearly.

"There seem to be very few weak points in this method; it might be suggested that certain students might be inclined to regard this system as no examination at all but rather a 'snap.' Such students would probably be in the large minority; and the chances are that by the time the study was finished, or at least several like it, they would have changed their minds."

"It is liable to allow the student to take a certain view-point from which he looks at the whole subject matter of the course and this view-point (his own) may not be a valuable one at all but may even be harmful to a correct and clear grasp of the course."

"The student may neglect the ordinary work of the course if he knows that he is not to be examined on it ... Another objection might be that the student will not get the proper review of the previous work of the course. A third might be that the method does not require sufficient exercise of the memory."

"If a student was so inclined he might get some one else to prepare the paper for him or might revise some one else's paper, or copy a few facts from the book and present them."

"Perhaps one weak point is the fact that the students come to rely too much upon the book and merely mechanically copy out any ideas which strike their fancy without thinking of the relation of these ideas to the whole and to the other ideas. Thus it may degenerate into a purely mechanical process."

"Weak points:

"1. Danger of the student emphasizing unimportant points to the exclusion of the main issue.

"2. Danger that the student may arrive at erroneous conclusions or unfounded and false theories.

"3. The student may merely transcribe his notes or take extracts from the text, without thought and without developing or relying on memory.

"4. There is no certainty that the result is the pupil's own work.

"5. Gives the student the impression of superiority and individual egotism, and allows procrastination in preparing work."

"It is hard to know just what the reader considers the standard of excellence. If a definite question is asked, one knows whether he has answered it satisfactorily or not, but in a self examination it is not easy to know just what kind of a paper is expected."

"And the one fault which I felt it had has proven neglible, that of relaxing of study and a tendency to copy back the material. Some way or other you just can not do this -- there is a personal pride in the work that has no time to enter into the old set examination."

In the last question of this division, a comparison of the method of the self examination with the set examination, there appeared again the strong and weak points of each method, as set out in questions 9 and 10 of Part I, and question 8 of Part II of this questionnaire, and it would be only to repeat to go into any detail of such comparisons. This does not mean, however, that there were no definite returns from the question, as it was more than a mere re-hashing of what had previously been said. The results of the comparison show a decisive vote in favor of the self-examination. The vote stood:

In favor	80
Against	1
No conclusions	20
Not voting	9

This is all the more significant since they were not asked to go definitely on record either for or against either type of examination.

A few general statements of interpretation and conclusions to be drawn from the data presented in the replies to questions 8 and 9, that would seem to be justified, at least so far as this group of students are concerned, are: (1) that the method of the self examination enlists their interest and most hearty response; (2) that it does this because they recognize in it an opportunity for personal development, for growth, originality, creative work, and its fairness, to all; and (3) that it is not without its faults.

The possible objections to the method, or weaknesses, are not to be overlooked. Attention has, however, already been called to the fact that nearly all of such so-called weaknesses were put in the potential mood; i. e., they pointed out that under this, that, or the other condition, such or such objectionable result might be the outcome. It is, of course, most important to know just what are the possibilities, either positive or negative, in any method.

F. Effect on Study Habits and Memory.

The specific questions of this division of the questionnaire are:

10. What would be the probable effect on your study habits if the method of the self examination should come into general use?

11. What would be the probable effect on your memory?

It was explained in Chapter II that these questions were added to the original questionnaire after a few had already had opportunity to reply. We have in all ninety-three, and ninety replies, respectively, from the students composing the original groups. In addition, we have replies from a group of thirty-five in Education 121, Principles of Secondary Education, semester, January to May, 1921, all of whom are familiar with the method of the self examination. As to their status in the university, this group was divided: juniors, 9; seniors, 19; graduate students, 7; all women. Since the work of the semester is not completed, their final marks have not yet been made up, but in general, the marks will be on an average about as they were in the

other groups. It might be interesting to know that three of the group are Phi Beta Kappa scholars.

The vote on question 10 stood:

Effect	Original Group	Supplementary Group
Improve study habits	85	30
No effect	6	3
Detrimental to	1	0
Didn't know	1	0
Not voting	0	2
Total	93	35

On question 11, the vote was:

Effect	Original Group	Supplementary Group
Improve memory	71	30
No effect	8	2
Detrimental to	8	0
Didn't know	3	1
Not voting	0	2
Total	90	35

No absolute conclusions may, of course, be drawn from these votes. The most one can say is that in the opinion and experience of the several students the advantages of the self examination far outweigh the disadvantages; or that in their opinion and experience, it would have the effects indicated by the vote.

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

Tested from this angle, and as shown in the results in questions 10 and 11, the self examination receives again the strong and all but undivided favorable response of the students, and as shown by practically every division of Part II of the questionnaire. Such response and cooperation has, of course, its meaning in education.

Chapters IV and V present the students' reactions to the set and self examinations separately. The following chapter will consider the data of the two together, with such comparisons and conclusions as may seem to be warranted.

CHAPTER VI.

A COMPARISON AND EVALUATION OF THE DATA.

The facts on the self and set examinations as revealed by the questionnaire, and presented in the two next preceding chapters, with brief interpretations in each case, yet stand alone in their separate chapters. We shall be better able to see their full meaning by bringing the main items, or even some of the more particular facts together and examining them in the light of each other. To do this will be the purpose of this chapter. The questions and data will again be grouped as in the separate chapters, with the interpretations following each group.

A. Feelings Toward Two Types of Examinations.

It will be recalled that the first group of questions made inquiry into the state of feelings at the time of the announcement of the respective examinations, with causes for such feelings. Following the same classification and grouping of terms into favorable, unfavorable, and indefinite or neutral, the results from question 1., when brought together are:

Classes of Terms	Self		Set	
	No.	Per Cent.	No.	Per Cent.
Favorable	27	48	20	18
Unfavorable	8	14	76	70
Indefinite or neutral	21	38	13	12
Totals	56	100	109	100

We shall have space to set out only a few of the specific terms under each of these classes, with the number of times used.

Favorable Terms	No. Times Self	No. Times Set
Pleasure, pleased	42	10
Relief, relieved	10	0
Interest, interested	9	1
Joy	7	2
Satisfaction, satisfied	7	2
Glad, gladness	4	1
Curious, curiosity	2	2
Delight, delighted	2	0
Happy	2	0
Surprise	2	0
Welcome	0	2
Totals	87	20

Besides the specific terms listed, there were seventeen additional terms used once each in favor of the self examination, and thirteen terms so used for the set examination. These would then make the respective totals of favorable cases:

Self examinations 104
Set examinations 33

This data in a way carries its own interpretations with it. It is not too much to say that the students were at least much more enthusiastic in behalf of the self examination than for the set examination.

[illegible] table [illegible] of the [illegible] [illegible] [illegible]

The reason or reasons for this enthusiasm may appear when we consider the several causes for those favorable feelings. However, since the types of examinations are radically different, the causes for the favorable feelings are not, in general, the same, and so we may not put such causes in a combined table. The several causes as shown by the number of times each was given are:

(a) Self Examination:

Opportunity for self expression	78
Not a set examination	27
Time enough allowed	19
Because it was new	9
No cramming	8
Fair	7
Opportunity for review	3
Because of constructive criticism on my MS., and discovery of my own weak points	2
Of more benefit (in general)	8

(b) Set Examination:

Interest and pleasure in subject . . .	9
Opportunity to review	9
Curiosity and speculation	5
Joy of competition	4
Opportunity to learn class standing . .	2
Opportunity for expression	2

Several of the causes might seem to be nearly alike, such as:

	Self	Set
Opportunity for (self) expression	78	2
Curiosity and speculation, or because it was new	9	5
Opportunity for review	3	9
Because of constructive criticism, or, opportunity to learn class standing	2	2

The remaining causes in the self examination list,

Not a set examination	27
Time enough allowed	19
No cramming	8
Fair	7
More benefit	8

are in themselves indirect criticisms of the method of the set examination as well as at the same time being also to that degree in favor of the self examination.

It is rather interesting to note also, with respect to the causes given for the favorable feelings in behalf of the set examination, that in one of the principal cases, such cause lay entirely outside of the method of examination, and was located in the subject instead, that of "interest and pleasure in the subject," which was responsible for nine of the thirty-one cases in all. It should also be pointed out that all the indirect criticisms of the set examination contained in the causes for the favorable attitudes toward the self examination do not imply that such alleged faults are necessary concomitants of the set examination. Take for instance the matter of time allowed. There is no reason why the lack of time as found in the set examination could not well be obviated by either one of two ways, or by a combination of the two: (1) actually to extend the time allowed to answer a given set of questions; (2) reduce the number of questions to be answered within the time; or (3) both extend the time and reduce the number of questions for the examination. To do this might even help to meet or to overcome some of the other objections, such as cramming, and unfairness, complained of indirectly.

But, even though it is granted that the set examination may be improved so as to overcome some of these objections, the same may not be said about that most fundamental objection, implied again in the favorable attitude toward the self examination, because of the opportunity for self expression in such examination.

We do not propose here to go into the problem of what constitutes learning or when or how does one learn, and so on. We just wish to call attention to the fact that in the minds of these students, as supported by their several experiences, the method of the self examination appealed to them much more than did the set examination, for to them it seemed to satisfy a fundamental principle in learning, this very principle of self expression.

It would be better, however, to examine some more of the data before pushing these conclusions too far. The unfavorable terms for both types of examinations tabulated after the same manner are:

Unfavorable Terms	No. Times Self	No. Times Set
Fear, fearful	1	48
Resentment, resentful, etc.	6	34
Dread, dreadful	0	17
Fright, frightened	1	16
Worry, worried	1	13
Nervous, nervousness	0	11
Anxiety, anxious	0	10

[illegible] Though it is probable that the [illegible] may be [illegible] in a [illegible] of these objections, the [illegible] may not be [illegible] that such [illegible] [illegible], [illegible] [illegible] is the [illegible] [illegible] [illegible] [illegible], [illegible] of the [illegible] [illegible] [illegible] [illegible].

[illegible] [illegible] [illegible] [

In addition to these, there were ten unfavorable terms used from two to five times against the set examination, and fifty-nine such terms used but once each. There were four additional terms used once each and unfavorable to the self examination. The eight unfavorable terms in the case of the self examination were used altogether but thirteen times, whereas the seventy-six such terms were used two hundred thirty-four times in the case of the set examination, or in a ratio of nearly 1 : 30.

It is significant that such terms as fear, dread, fright, afraid, worry, nervousness, despair, and terror, eight terms in all, are alone responsible for one hundred nineteen of the unfavorable cases, or nearly fifty-one per cent. of the total. It is also worthy of note that the foregoing eight terms are all but absent from the unfavorable list of the self examination, three of them, fear, fright, and worried, appearing but once each, being chargeable thus with about twenty-three per cent. of the total thirteen cases.

And as to the interpretation of these unfavorable terms, it might be asked, "What means this veritable broadside of seventy-six unfavorable terms, fired in all two hundred thirty-four different times against the set examination, as compared with the volley of eight terms and but thirteen individual or separate shots against the self examination?" It would seem difficult to misinterpret such an expression. We may at least say again that so far as the experiences of the students answering the questionnaires extend, the set examination is thrown into a most unfavorable light as contrasted with the self examination. This conclusion

is further borne out by the several causes for these respective unfavorable feelings, which were:

Cause	No. Times Set	No. Times Self
(1) Fear of failing	70	
(2) Work or character of study required	40	6
(3) Uncertainty:		
(a) As to questions	38	
(b) As to marks	19	
(c) General	10	
(d) Form required	1	6
(4) Lack of time	16	
(5) Unfairness of the examination . .	14	
(6) Examination, instrument of torture	6	
(7) Poor quality of teaching	5	
(8) Nervousness	5	
(9) General attitude of students and teachers toward examinations as something to be feared	4	
(10) Dislike or disapproval of examinations	4	
(11) Examinations inevitable	3	
(12) No interest in course	2	1
(13) State of health	2	
(14) Miscellaneous list	4	1
Totals	243	14

There is here again the same piling up of causes adverse to the set examination, which, if not due to the inherent nature of such examination, are at least due to the method of its administration. It is

In twelve cases out of the second series the tribe's economics was essentially hunting, which were:

Cases	No. tribes	No. times
	with	
(1) Lack of tattooing	79	
(2) Lack of conception of sinfulness	55	 8
(3) Concerning:		
(a) sex in mythology	13	
(b) sex in dance	19	
(c) indecent	13	
(d) lack original	1	 1
(4) Lack of idea	11	
(5) Infrequency of the association . . .	10	
(6) Gambling, indifferent or taboos	9	
(7) Low quality of beliefs	5	
(8) Infrequency	5	
(9) Absent relation of ceremony and sacrifice to food	4	
(10) Lack or disapproval of masturbation	4	
(11) Ceremonies functionless	1	
(12) No incentive to change	8	 7
(13) Fear of death	2	
(14) Miscellaneous lack	4	 1
Totals	243	26

There is more again the more adding up of causes giving to the and association, which, if not due to the inherent nature of such associations, are at least due to the method of the association. It is

likewise evident that such unfavorable attitude as there was against the self examination is practically negligible.

In comparing the indefinite or neutral terms used in the two descriptions, we have:

Indefinite or Neutral Terms	No. Times Self	No. Times Set
Indifference, indifferent	21	41
Surprise, surprised	2	3
As a matter of course	2	2
Puzzled	2	0
Relieved	0	2
Miscellaneous, once each	17	9
Totals	44	57

The causes for these indefinite or neutral feelings will throw light on the figures above. Bringing like causes together the results would be as follows:

Causes	No. Times Self	No. Times Set
To be expected, used to	14	24
Time allowed	7	3
Method of preparation for	2	4
Not interested, indifference to grades	3	5
Method of presentation - expression	2	6
Novelty of method	12	0
Confidence in self	5	0
Anxious to accomplish task	1	0
Not a gamble	1	0
Shame, if not fair to teacher	1	0
Surprised at word examination	0	1

On the whole, the foregoing data would indicate that there is less of an indefinite attitude on the part of students toward the self than toward the set examination. The indifference confessed was 21 : 41 or nearly 1 : 2, in favor of the self examination. In the totals, the

[illegible] studied also some [illegible] [illegible] [illegible]

testimony is still for the self examination, although not so much so. Here the ratio is about 1 : 1.3 on the side of the self examination. There is a reason for this decreased ratio which appears in the twelve cases, under causes, who gave the newness of the method as the reason for their indefinite attitude. "Puzzled," in the list of specific terms, for which feeling there was given as a reason, "I didn't see how any one could examine himself," is a type of term put down as indefinite or neutral, and which, if eliminated from this group, would very nearly result in the former ratio of 1 : 2 on the side of the self examination being maintained.

There is also evidence among this group of terms and the causes given, that the question was interpreted to apply only to the very first announcement of a self examination, up to which time they know nothing of the method nor how to go about to accomplish it. This is clearly shown in the examples, (1) "Lost -- at first;" (2) "A little queer -- it was a new situation, and consequently I did not know how to act;" and (3) "Surprise, due to the novelty of the thing." That this misinterpretation of the question is responsible for some of the indifference is clearly expressed. Further, there is some evidence that the sort of fatalistic attitude taken toward the set examination from habit, was not without influence in the matter of the feelings on occasion of the self examination. It was the fact that it was an "examination" that caused these feelings or lack of feelings. The idea of it being a "self" examination and its meaning had not yet attracted their attention. If the question had been interpreted by all as applying to

the announcement of a self examination after they were fully acquainted with the method and what was wanted, and not to the occasion of the very first announcement, the expression of feelings would undoubtedly have been quite different. It does not follow, however, that the change would have resulted only in gain for the favorable expressions. The law of probability would argue that the unfavorable list would have had its share of accessions from this change of feelings resulting from a correct interpretation of the question. The chief net results from such proper interpretation, it would seem, would most likely have been to reduce the list of indefinite or neutral feelings toward the self examination, which of itself would be a very positive thing and really in favor of such self examination.

The classes of terms, number of times used, and the per cent. each is of the total for the two types of examinations appears in the table below:

Classes of Terms	Self		Set	
	Times Used	Per Cent.	Times Used	Per Cent.
Favorable	104	64.6	33	10.2
Unfavorable	13	8.1	234	72.2
Indefinite or neutral	44	27.3	57	17.6
Totals	161	100.0	324	100.0

The table is read, favorable terms appeared one hundred four times, or sixty-four and six-tenths per cent. of the total times all terms were used in describing their feelings toward the self examination; or, the unfavorable terms were used two hundred thirty-four times or in seventy-two and two-tenths of the total number of cases.

The appearance of a well equipped office [illegible] very [illegible] [illegible] [illegible] and [illegible] [illegible] [illegible]

The feelings at the time of taking the examinations may well be considered alongside the feelings expressed on hearing the announcement of such examinations. The several classes of terms and number and per cent. of each were:

Classes of Terms	Self		Set	
	Times Used	Per Cent.	Times Used	Per Cent.
Favorable	33	64.70	20	29.00
Unfavorable	9	17.65	38	55.00
Indefinite or neutral	9	17.65	11	16.00
Totals	51	100.00	69	100.00

The attitude of the students toward the two types of examinations is, however, more clearly brought out in a tabulation of the number of times these different classes of terms were used and the per cent. each was of the total.

Classes of Terms	Self		Set	
	Times Used	Per Cent.	Times Used	Per Cent.
Favorable	124	83	43	19
Unfavorable	9	6	151	66
Indefinite or neutral	16	11	35	15
Totals	149	100	229	100

The dominant causes for this very favorable attitude toward the self examination, a reference to the tabulated causes in Chapter V will show, were freedom, interest, opportunity for self expression, and sufficient time being allowed, which were cited in all seventy-one times out of a total of eighty-one, or nearly eighty-eight per cent. of all the causes given.

In contrast to this, the dominant cause for the unfavorable feelings toward the set examination was fear of failing, which alone was responsible for sixty-five of the seventy-one causes given, or nearly ninety-two per cent. of the cases.

The meaning of such evidence as this is clear and unmistakable. The set examination tends to produce, as one student put it, "a situation that is unhealthy scholastically," and the self examination tends just as surely to "relieve" such situation.

The [illegible] in the [illegible] of [illegible] conditions may well be considered alongside the [illegible] approaches in keeping the [illegible] of such [illegible]. The [illegible] breakdown of [illegible] and [illegible] and [illegible] of each [illegible]:

Classes of Items	July		Jan.	
	Items Dead	Per Cent.	Items Dead	Per Cent.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Totals	[illegible]	[illegible]	[illegible]	[illegible]

The [illegible] of the [illegible] [illegible] for [illegible] [illegible] [illegible] [illegible], however, [illegible] [illegible], [illegible] and [illegible] [illegible] [illegible]

Of the causes for the favorable feelings toward the set examination, sixty-eight per cent. were qualified and were of the nature: "If I knew the answers," "if I was well prepared," or, "if the examination was fair." These causes for favorable attitudes thus indirectly or impliedly are criticisms of such set examination.

Again, of the causes for the unfavorable feelings toward the self examination, out of a total of nine causes given, four of them or over forty-four per cent., were due to not understanding what was wanted. This fact would again tend to reduce the nine unfavorable terms and make the contrast in favor of the self examination even greater. There is also reason to believe that, as in the case of the feelings at announcement, a misinterpretation of the question, or the habit of reaction toward anything partaking of the nature of an examination, was responsible for some of the indifference toward the self examination, and not the nature of the self examination itself. To what extent, a general use of the method of the self examination would produce similar attitudes of indifference, of course does not appear. This would suggest a field of investigation, should the self examination ever be used at all extensively.

In contrasting the two methods of examination in the matter of producing a state of nervousness in the students, the evidence shows:

	Self	Set
Yes	4	75
No	103	37
Both "yes" and "no" . .	0	4
Not voting . .	2	0
Totals . .	109	116

[illegible] the Thematic Analysis based the [illegible] [illegible] [illegible]

It was learned in Chapter IV, "The Set Examination," that fear of failing was responsible for sixty-five causes of nervousness out of eighty-five causes given, or nearly seventy-seven per cent. of the total causes. In other words, just about one-half of the total one hundred sixteen students were made nervous because of the presence in one form or another or degree, of the fear of failing. Nearly fifty per cent. of the causes given for the lack of nervousness were really only statements of conditions under which there is no nervousness, it being thus indirectly asserted that under other conditions than those mentioned, nervousness is actually present.

In strong contrast to this situation above are the one hundred three cases of no nervousness at the time of preparing the self examination manuscript, and the reasons offered for the absence of all nervousness. Opportunity for self expression, relative certainty of the situation, (in the sense of the chance or gambling element being removed; i.e., no "catch" questions or unusually hard or unrepresentative list of questions to face; but of course always the relative uncertainty as to whether or not the product offered as a result of the self examination would be either acceptable or accepted by the one in charge of the course); no fear of failing, fairness of the examination, and knowing just what was expected and how to do it, were among the reasons presented. These represent one hundred one of the total one hundred twenty-six specific statements of cause, or eighty per cent. of the cases. The other twenty per cent. of specific reasons for non-nervousness are found under such heads as, "no reasons for nervousness";

"environment and physical comfort in being alone or in a quiet place where work could be done satisfactorily", and "don't know."

From this latter data, the set examination again compares unfavorably with the self examination. It is remarkable how that the percentage against the former is nearly always equalled or exceeded by the percentage in favor of the latter. Regarded thus as negative and positive quantities, respectively, the difference between the two is almost or quite doubled.

In this matter of feelings toward the self and set examinations, the data as a whole leads irresistibly to a conclusion in favor of the self examination as educational means, as against the set examination. The next phase of this problem is how the two methods of examinations compare in fixing or in requiring to be built up valuable and efficient habits of study.

B. Study Habits of Two Methods Compared.

It was seen that "cramming" is the method of study in a large majority of cases, in preparation for the set examination. This is the method in a little over seventy-nine per cent. of the cases. Or, to put it the other way, fewer than twenty-one per cent. of the cases do what might be called real study. In direct contrast to this is the testimony of the students in regard to their study for the self examination. There is practically no cramming and not fewer than sixty-four per cent. follow the method of selecting the main points, factors, elements, or principles, supplementing this material or principles by additional reading, from discussion, personal experiences, and so on, and then

"[illegible] and physical [illegible] to [illegible] alone or in a [illegible] [illegible] [illegible] [illegible] [illegible]", are [illegible] [illegible].

[illegible] [illegible], [illegible] [illegible] [illegible] [illegible]

organizing and developing it into a fitting manuscript. It need scarcely be pointed out that this latter method follows rather closely the lines of reflective thinking, while the former really violates the principles of such thinking. In this respect, then, of encouraging proper habits of study, the self examination excels the set examination by the usual margin or difference.

There are several checks on the data above relative to their habits of study. The students were asked directly whether their method of study in preparing for an examination, either a set or a self examination, differed from their usual method of study. Setting the results out in a single table they are:

Does preparing for self or set examination differ from your usual method of study?

	Self	Set
Yes	48	92
No	33	23
Not voting	3	1
Compared to Set Exam Study .	25	0
Totals	109	116

In giving the points of difference between preparing for an examination and their usual method of study, forty-five said they crammed in preparing for a set examination, while thirty-two stated that they did not cram in studying for a self examination.

The fact, as was pointed out in Chapter V, that question 4 in Part II of the questionnaire was largely misinterpreted, the students in twenty-five cases making the comparison between the methods of study for the self and set examinations, instead of between the self examination

[illegible]

study and the usual study method, prevents us from drawing any general conclusions from the data cited, except the matter of calling attention to the method of "cramming" or not cramming, as we have already done. In general, it would seem to be true that that method of conducting examinations which would cause the least difference between the usual method of study and study for examination, would be the best examinational method or educational means, considered from the standpoint of habit building. We have already had occasion to call attention to the fact that if the examinational method encourages a habit of study radically different from the usual method of study, that to build up any really true habit of study will be all but impossible. To put the proposition the other way, that examinational method would seem to be the best which requires study in preparation for it to follow the principles of reflective thinking most closely, and that method of examination would seem to be the poorest that encourages study in preparation for it to violate such principles of reflective thinking. Viewed from this standpoint, the method of the self examination would seem to be far superior to the set examination, as educational means.

Due also to the evident misinterpretation of question 5, Part II, the comparison between their study for examination, either a self or set examination, is likewise affected by this same misinterpretation. However, with this explanation, the following tabulation may not be wholly without value.

[illegible] and [illegible] study [illegible], [illegible] [illegible] [illegible]

	Self	Usual	Set	Usual
More valuable	72	1	24	56
Equal value		14		17
Indefinite or Miscellaneous . . .	19		18	
Not voting	3		1	
Totals	94	15	43	73

In comparing the self examination study with the usual study, seventy-two said that study for self examination was the more valuable, and one that the usual method of study was the more valuable. In the case of study for the set examination and the usual study, twenty-four agreed that study for the set examination was the more valuable, while fifty-six disagreed as heartily with that proposition, but were in accord with the proposition that the usual study is the more valuable. The preponderance of evidence is thus once more against the set examination, and in favor of either the usual study method or study for the self examination. This testimony in favor of the self examination is further substantiated by the testimony from questions 10 and 11 of Part II of the questionnaire. These questions were to the effect, what would be the probable effect on your study habits and memory if the method of the self examination should come into general use?

	Effect on Study Habits	Effect on Memory
Improve	115	101
No effect	9	10
Detrimental to	1	8
Didn't know	1	4
Totals	126	123

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

These facts again carry their own interpretation with them. Just what would have been the results if the direct question on the effects of the set examination on their study habits and memory had been asked, does not, of course, appear. However, from the evidence above, it is overwhelmingly the judgment of the students that the effect of the self examination in these respects is good.

C. Direct Evaluation of the Two Methods.

It will be noted that questions 9, 10, and 11 of Part I constitute, to a degree, a check on each other, as do also questions 8 and 9 of Part II. The two sets of questions in the respective parts of the questionnaire again constitute a check on each other. The group of questions on the study habits, in a measure, serve as a further check on some of these same problems.

We saw that fifty-two students agreed that the set examination was valuable because it served as a spur or incentive to keep up their daily work. This would be an important item in the evaluation of the set examination, if true. But, a rather wide acquaintance with the study habits of students causes one to hesitate to accept such a relatively large vote as a true reflection of the real situation. Happily, however, we have more substantial data on this point than mere empirical evidence. In answer to question 10, forty-eight students stated that the method of the set examination was bad because it encouraged "cramming." We also saw in the summary of the results to question 4, Part I, that about seventy-nine per cent. of the students stated either directly or indirectly that "cramming" was their method of study in preparation for a

set examination. Now, "cramming" is not the method of study adopted by those who have "kept up their work", but by those who have not done so. What, then, is the explanation of the apparent contradiction or discrepancy in the testimony? Is it not this? In questions 4 and 10 the students were describing their study habits, and were telling of things and situations as they actually knew and had experienced them, while in question 9 they were, by the very nature of the problem itself, undoubtedly inclined to write of them, not so much as things or situations are, but as they are intended or supposed to be. The answers to question 9 might be said to tend to take on more of a bookish or academic atmosphere, while the same temptation would not necessarily be present in making their replies to questions 4 and 10. May we not, therefore, assume that they were speaking out of what they had actually experienced and knew about examinations, and not so much "out of the book", as they would be the more likely to be doing in answer to question 9? It is thus very probable that we have more of what they actually thought and believed in the replies to questions 4 and 10 than we have in question 9.

This viewpoint is further corroborated in the data presented in questions 5 and 6. In question number 5, forty-five acknowledged to "cramming". They were not asked to do so. The belief is held that if the direct question, "Do you cram for examinations?" had been put, from seventy to ninety per cent. would have acknowledged doing so. (This question was put to a group of thirty-five students recently with results about as indicated.) And in the sixth question, fifty-six students gave it as their several opinions that their usual study was more valuable

than their study for examination, for the reasons, as already suggested, absence of cramming, following their individual interests, and the like.

The set examination was indirectly criticized in the students' suggestions for improving such examinations. Thirty-five suggested that the set examination be abolished either outright or by a substitution of an entirely different type of examination. The wide range of remedies suggested of course imply an equally wide range of things to be remedied. The abuses thus indirectly complained of were chiefly in regard to (1) the lack of proper correlation between the length of time allowed for the examination and the number of questions asked or required to be answered; (2) the type or nature of the questions asked; and (3) the too great value or weight usually attached to such examinations in the matter of determining the student's mark or standing. These things agree with the wrongs of the set examination complained of in the preceding question. Fifty-four students brought the charge, in question 10, that the set examination is unfair because of the presence or possibility of catch questions, and seventy students in their plans to improve the set examination suggested a change either in the type or character of the question, or an increased range of choice of questions. Twenty-eight students objected to the method of sampling as not being a fair test, while twenty-four suggested that the basis for grading or marking be broadened, being made to include class work, papers, reports, and so on, in addition to mid-terms and finals. All this, of course, raises many problems that really lie outside of this study, and which we cannot

hope to solve now, as we are here concerned only with a comparison of the results obtained from the answers to the questionnaire. We may only suggest them in passing.

In decided contrast to the results obtained from questions 9, 10, and 11, Part I, are those on the whole, of questions 8 and 9, Part II. For the purpose of this contrast, let us restate some of the outstanding facts.

Set Examination		Self Examination	
Unfair	54	Fair	41
Encourages cramming	48	Inculcated proper study habits	86
Causes bad emotional states .	31	Produces normal emotional states	43
Does not provide for personal reaction, self-expression, etc.	17	Does so provide	81
Not a true test by sampling .	28	Is a good measure of ability	23

While these data do not prove that the self examination is a better method than the set examination, yet they do show that the weight of the students' opinion is in favor of the self examination.

Relatively, large votes were recorded by the students as to three possible weaknesses in the self examination,

(1) Destroys basis for grading, of difficulty of grading 21
(2) May inculcate bad habits of study . . . 57
(3) May be unfair 31

These possible weaknesses must, to be sure, be taken note of. It is significant, however, that they were nearly all suggested only as possible weaknesses, and not as being actually so. There is a vast difference between saying "This is so," and "This may be the case if conditions should be thus or so." And it is just in this difference that the contrast lies between the weighing of the set examination and the evaluation of the self examination by the students. In the case of the former they said definitely that this is so, while in the latter they were practically unanimous in saying that this may be so under certain conditions. In the former there was no doubt, while in the latter there was such doubt as to the so-called weakness, and this doubt alone would, it seems, operate in favor of the self examination. In answer to this, on the other hand, it might be urged with a considerable degree of force, that the doubt in the minds of the students was due rather to their relative inexperience and unfamiliarity with the self examination, while in the case of the set examination they were on entirely familiar ground, and that with greater acquaintance with the self examination such doubt might be removed. This is a point, to settle which there is no data, and so we may not decide it. It must, however, be duly recognized. It might be to the point here to state that the group of thirty-five students in Education 121, of which mention has already been made, were asked whether they would be willing to be rated in their college work, and passed or not passed, on the basis of the self examination. The vote stood:

"Yes" . . . 34 "No" . . . 1.

The vote above may be offered in answer to the twenty-one who gave as a weakness of the self examination that it tends to destroy the basis of grading, or increases the difficulty of marking. The thirty-four above might also be presented as a part answer to the forty-eight who said in effect that one of the chief values of the set examination was the fact that it afforded a convenient basis for marking and grading, and checking up on the work of the students. But, it might be asked whether there may not be some other worthwhile things that are gained in compensation for the "convenient" basis that has been lost, such as opportunity or provision for the special interests of the students, and whether to encourage such special interests may not be of even greater importance than the basis for marking that has apparently been destroyed in the self examination.

That the set examination does afford a better basis for marking is, of course, granted, and this is, in a way, greatly in its favor. But, the question comes, Is the set examination, therefore, the better of the two methods? May there not be some disadvantages arising from the use of this method that far outweigh any apparent advantages? We have already pointed out a few such disadvantages that seem to stand out as a result of this questionnaire; (1) the bad study habits inculcated by said set examination; and (2) the unwholesome emotional states induced by such examinations. Thus to claim its convenience as a basis for marking or checking up on the work of the students as a merit should always be considered in the light of the whole effect of such examinations.

May it not be that we are paying too high a price for this value? The answers of the students would seem to indicate that we do.

We might also offer as an answer to the twenty-one students who pointed out that the basis of marking is largely destroyed in the self examination, the twenty-four students who suggested that a means of improving the set examination was to broaden the basis of grading or marking, thus approaching the basis of the self examination.

As against the fifty-seven who suggested the possibility of the self examination inculcating bad habits of study, we may put the seventy-two who voted that their study in preparation for the self examination was by far the more valuable. Thus, when put to a test, the habits of study inculcated by the self examination seem to show up rather well. So, also, against the thirty-one who indicated that the self examination might be unfair, we may again put the thirty-four out of the thirty-five who expressed their willingness to be rated in their college work on the basis of the self examination.

The data of the ninth question of Part II serves as a further check on the data above, and really substantiates such data. For the sake of contrast, we shall here restate that data in brief. In comparing the self and set examinations, eighty students took a definite stand for the self examination, one voted for the set examination, twenty were non-committal or indefinite, and nine did not vote at all. Typical attitudes toward the self examination are:

"It is more pleasant even though it may take twice as long as to answer the questions of a set examination."

"It is a paper of our own invention and naturally is more interesting and not so irksome as some tasks."

Thus, from every angle viewed, the vote of the students is decisively in favor of the self examination. The reasons for this attitude that have stood out prominently are:

(1) It is fair.

(2) It allows for enough time to do the work.

(3) It is conducive of proper emotional states.

(4) It provides opportunity for self expression, personal reaction, judgments of worth.

(5) Allows for the special interests of the students.

Any one of the five items above would alone be greatly to the credit of the examinational method that provides such a state or opportunity. The fact, then, that all five are given as inherent characteristics of the self examination is of unusual significance.

Chapter VII.

RETROSPECT.

The data having all been presented and considered, both separately and in contrast, and such interpretations of the data as seemed to arise out of the contrast and comparison, made, there remains to take a retrospect of the study as a whole, to offer such criticisms of the procedure as may be desirable or justifiable, to add any suggestions for a further study of the problem, as might appear to be necessary or advisable, and to evaluate the net results and draw such conclusions as may seem to follow.

A. Criticism of the Method.

It was stated at the outset that the purpose of the study was not to find whether or not there was this or that kind of evidence, but rather to find out, as nearly as possible, exactly what was in the minds of the students in regard to these matters. It was with this purpose in mind that the questions were framed after the manner in which they were given in the questionnaire. That this aim was or was not reached does not appear in the form of direct evidence. There is, however, some indirect evidence that such aim was not fully accomplished. One of these has already been given, the evident misinterpretation of several of the questions, as shown in the replies. There are one or two others that deserve mention, and which may not be of the least importance.

CHAPTER VII.

CONCLUSION.

[illegible]

1. Criticism of the Method.

[illegible]

It will be noted that in I, 1 and 7, and II, 1 and 6, possible descriptive terms were given in explanation of what was meant by the question. The query, of course, comes, "To what extent did these suggestions affect the answers of the students?" This possibility was recognized and in part guarded against by the directions to the students, (1) not to limit themselves to the use of the terms suggested, but to notice the "etc.," and (2) to describe their feelings as they actually are or were in the matter. The same terms were also used, as well as the same order followed in every instance. There is, perhaps, some evidence of the influence of suggestion, in spite of these precautions, and the piling up of some of the terms as a consequence. But this does not explain the rather frequent occurrence of such terms as "anxious," "anxiety," "dread," "dreadful," "nervous," "nervousness," "worry," "worried," of the unfavorable terms in the case of the set examination. These terms appeared in the aggregate, fifty-one times, or in nearly fifty per cent of the replies to answer I, 1. "Afraid," "anxiety," "anxious," "excited," "excitement," "nervous," "nervousness," "tenseness," "tension," and "worried," appeared in I, 7, the unfavorable list, fifty-four times in all. These were not in the suggested list. Neither would such list explain the appearance of the terms, used in favor of the self examination, in II, 1, as "glad," "gladness," "interest," "interested," "relief," "relieved," and "satisfied," "satisfaction," which occurred in all thirty times; nor in II, 6, the terms "interest," "interesting," and "satisfaction," used together thirty-seven times. "Enjoy," enjoyable," etc., used alone nine times,

was not included with the favorable terms above, as it might be said to be derived from or was suggested by the term "joy", which was in the list. There is also some evidence that this suggested list may have influenced the terms in favor of the set examination, witness the term "pleasure," used ten times in I, 1; and the unfavorable terms as well in the case of the self examination, as "resentment," used six times, II, 1. The indefinite or neutral terms may also in both cases have been thus influenced; as, "indifference," "indifferent," used forty-one and twenty-four times respectively in I, 1, and I, 7; and twenty-one and seven times each in II, 1, and II, 6.

Since, however, there is no way of measuring the exact influence such list of terms had on their selection, or use, all we may do is to call attention to the possibility of such influence. It might also be suggested that the wide range of terms selected and actually used by the students in itself may be an evidence that they consciously attempted to avoid being influenced by the terms in the list. The investigator would be inclined either to omit explanatory terms altogether, in any further study in this field, and to adopt some other means of making clear what was wanted, or else to try to give an inclusive list of descriptive terms, in which list the student would be asked to check the appropriate term or terms.

One other major criticism may be offered, and that is the one involved in the difficulty encountered, as already alluded to, in

classifying the replies of the students under anything like mutually exclusive terms, without perhaps too much forcing and the possible loss of not a little meaning as a consequence. To avoid this difficulty, the questionnaire might be prepared under the principle of mutually exclusive terms, if that were possible, and another study made under such a plan. There would be a question, however, whether by this procedure one would or could actually get what was in the minds of the students. It would yet seem well worth while to undertake a new study after the manner indicated. And this leads us up to another consideration of this concluding chapter, viz., suggestions of still unsolved problems, and which would consequently require further study.

B. Additional Problems for Study.

In addition to the problems suggested by this study and already mentioned, and the suggestions for further study that have been made, there are still several other problems not as yet pointed out, that would have a bearing on the final solution of the relative merits of the self and set examinations as educational means, as well as some suggestions for further study that should be made. It will not, of course, be possible to point out all of the problems that might arise in the solution of the major problem stated above. We may here only outline in a broad way some of the minor yet fundamental problems involved in the whole question. To enumerate just a few of these we would have, (1) the matter of marking or grading a self examination

manuscript. In abolishing the list of questions common to all in the set examination, the manuscripts in the self examination, both as to the matter of approach and organization are often as different as the persons writing them. Under objections to the self examination, II, 8, this was one of the points raised, to the effect that the self examination tends to destroy the common basis of marking. A solution to this problem might be in the direction of the marking scheme adopted to grade term papers, written on different subjects by the different students. (2) A second investigation would have to consider to what extent the self examination "opens the road to dishonesty," as one student put it. Would it open the door to cheating any more widely than the set examination? What is the correlation between the element of chance in the set examination and the cheating that is done in such set examination, as judged by (a) newspaper accounts of expulsions for that offense, the reports of the Student Affairs Committee, as published in The Daily Californian; (b) the personal testimony of students, both oral and written; and (c) the implied evidence in the attempt itself to establish the "honor system" in examinations? To what extent would the self examination tend to become a formal or stereotyped matter, and thus encourage the handing down of prepared manuscripts by one student generation to the next? Would it also require an "honor system" to enforce it? Would the "open door" render cheating less or more probable? (3) A third problem, and partly allied to the foregoing problem would be a further study into the effect on the study habits

of the students that the self examination would actually have? Would it degenerate into mere outlining or summarizing, lacking the element of interpretation and personal reaction? Would students come to depend too much on the book? What are the study habits actually engendered by the set examination? Which method tends to inculcate the better study habits? (4) Another problem that might have been considered in connection with (2) and (3) above, is, Would the self examination tend to be unfair to the conscientious student who does his work daily, by permitting the slacker to "cram", so to speak, even for the self examination, and thus be able to write a paper of sufficient quality or worth to "get by," with perhaps even a better mark than said conscientious student? Would it give more opportunity in this direction than the set examination? (5) Would a general use of the self examination tend to impair memory; or rather, would it fail to provide adequate memory training? What is the effect of the set examination on memory?

With the apparatus used by psychologists to measure the effects of different emotions or emotional states on the individual by testing certain secretions, following or as a result of such emotional state, similar tests might be made as to the effects of the emotional states caused or produced by both the self and the set examination. Which type of examination is conducive of the better emotional states? What is the effect of the different emotional states on the learning process? All these problems and more might fittingly be taken up and investigated.

If it should be found, after investigating the method of the self examination in its different phases as suggested, that it is on the whole superior to the set examination as educational means, there would remain the further problem as to what levels in school it would be adapted for use. Could it be used with equal success with elementary school, high school, and college or university students? Is it peculiarly adapted for use in any particular school level? What modifications would it have to undergo, if any, without doing violence to the principle of the self examination, to adapt it for use in the several school levels? We should also have to consider to what extent it is adapted for use in any and all subjects. Are there some subjects that would not readily lend themselves to its use? Are there other subjects that are especially well adapted to such a method? What subjects fall into each category and why? What adaptations could be made of the method so as to be suitable for use in subjects that might at first be thought not to lend themselves to such a method?

And last, but not least, what is the relation of our examinational methods to the method of teaching? Would the self examination be adapted, for instance, as a proper method of examination in a purely lecture and assigned reading course? Which of the two methods is the better adapted to such a course? Would the use of the self examination demand or require a fundamental change in our methods of teaching in order to make the use of such examination most valuable?

After we had answered the foregoing questions and still others besides, and had brought the several results together, we might hope to give a more adequate answer to the question, "What is the value of the self examination as educational means?"

C. The Net Results.

What, then, may be considered to be the net of results of the study? In the first place, it may be safely said that what has been clearly shown is that, so far as this particular group of students is concerned, the method of the self examination is by far more acceptable than the set examination. This fact by itself is, of course, not conclusive. It has also been observed that students more readily vote a vacation at school than they do more work. It is the reasons for this greater acceptability of the self examination that are significant. Let us look into this matter a little farther.

They hold the self examination as being quite superior to the set examination because,

(1) It creates more desirable emotional states in those taking it than does the set examination; or, it eliminates the objectionable emotional states found so largely present in the set examination. This situation, if true, and in the experiences of these nearly one hundred twenty students it was found true, is a matter of no little importance. It would certainly seem to be a great gain to eliminate practically all the fear and dread of failing, together with the other unhealthy emotional states, and ought to add very materially to the effectiveness of any method that does this.

(2) The testimony seemed to show further that the self examination inculcates the better study habits. As one student put it, the difference between the two is just "the difference between thinking and boning." Another student said that the self examination is "more of a thinking process, solving problems as they appear in your mind, such as one meets all the time in life."

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Thus the consensus of opinion of the students in favor of the self examination is based on their feeling that the self examination

fits one more fully to meet the problems of life than does the set examination. This conclusion is in direct contrast to the popular opinion that one of the greatest values of the set examination is the alleged training it gives students in meeting and adjusting themselves to crises in life. It is the opinion of the writer that these crises are far less numerous than is ordinarily believed, and especially than is assumed to be the case when the argument is used in favor of the set examination; and further, that when these crises do come, they are usually of a kind or character for which the taking of set examinations has given little if any training. At this point there is opened the whole controversy of formal discipline, general training, or the transfer of training. But we may not enter into such controversy here. We believe, however, that a very careful study should be made, (we know of no such study) as to what extent there are really comparable or similar elements between the actual needs or problems of life and the training or power required to meet them, and the elements present in and the training given by the set examination. There would also have to be considered the question, to what extent do set examinations set up interferences in the way of inculcating improper study habits or methods of work, and the like, and thus to that degree render one ineffective rather than effective in meeting said problems of life.

It was suggested that the simple fact that the students found the self examination the more acceptable of the two methods, would of

itself not be conclusive evidence in favor of such examination, as it might be considered a "snap" or a "pipe", or whatever descriptive term applied by the students might fit here. That it is because of any such quality or lack of quality in the self examination that it was found more acceptable is refuted both by the answers of the students themselves and also by the character and quality of the manuscripts turned in, as well as by their direct testimony.

Those who are familiar with the kind and character of the usual set examinations, either mid-terms or finals, also know that it is the unusual student who is able to write more than a blue-bookful, or even half so much, in a fifty-minute mid-term. In the case of the self examination the student who does not write a blue-bookful or more for such mid-term is the exception. Two blue-bookfuls is not uncommon, and sometimes even four and five such books are turned in by a student. This, of course, does not prove anything beyond the fact that they actually do spend more time on the self examination than on the set examination. That the quality of the former is better than the latter is not proved.

Again, it is the almost unanimous testimony of the students in answer to the direct question, (not made a part of this study, but always asked informally of the students,) as to which method of examination they considered the harder, and which requires the more work, that the self examination is both harder and requires more work. And we have already seen that in the face of these facts as they discovered them, that the almost invariable answer is that they prefer the self examination to the set examination.

Second, the inquiry showed further that the self examination was more acceptable than the set examination for the reason that it makes what seem to be correct appeals to the instincts, native capacities, powers, or tendencies, such as self activity, initiative, originality, creative work, and special interests of the students, while the set examination to them was found inferior in these respects.

These things being so, there is the indirect conclusion to be drawn that the self examination enlists the sympathies, interest, hearty support and cooperation of the students more successfully and to a greater degree than does the set examination. This was also the direct testimony in their evaluation of the self and set examinations in II, 9 of the questionnaire. This point then seems to be conclusively established both by the direct and indirect testimony returned in the investigation.

The meaning and value of good will toward, sympathy with, interest in, enthusiasm for, and cooperation with a method in education, all other things being equal, cannot well be overestimated. But we must not draw the hasty conclusion that, therefore, the self examination is better as educational means than the set examination. Such a conclusion would be a "non sequitur." We said, "all things being equal." All things may not be equal. Whether or not they are, still remains to be proved. We may, however, safely say that in these respects of sympathy with, the enlisting of interest, and support for, the self examination excels the set examination, and this of itself would seem to be a distinct gain.

A third value of the study is this approach adopted for the solution of the problem of examinations as educational means. It opens up one phase of the whole problem that has not been largely studied, but which certainly must be considered before any adequate solution can be reached. It would seem to be an axiom that it does make a very great difference what those to whom a method is applied, they being conscious of such method, think of the method and how they react to it in other respects.

Fourth, new light has been thrown on the set examination as educational means, and its effect or lack of effect in certain directions and to a certain degree have been measured.

Fifth, the amount of time devoted to examinations, as well as the money value represented by such time, should call for a scientific study of the problem, to determine what value may safely be attached to examinations, and what place they may rightly hold in our educational scheme.

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